AMERICAN

STATISTICAL ASSOCIATION.

NEW SERIES, No. 52. DECEMBER, 1900.

ADVERTISING IN THE UNITED STATES.

By Sidney A. Sherman, Ph.D.

Advertising in the United States may be conveniently described under three heads,— the mediums used, the things advertised, and the advertisers and their organization.

THE MEDIUMS USED.

The periodical press overshadows all other mediums of advertising, and is the first to engage our attention. For the last fifty years the daily newspapers have constituted almost exactly ten per cent of the whole number of periodicals. In 1899 they numbered 2128 in a total 21,269. In 1890 their circulation was twelve per cent of the total circulation of the country. Advertising in the daily papers is chiefly local. It consists of the advertisements of retailers, real estate brokers, financial institutions or firms, legal notices, entertainments, and situations or help wanted, besides miscellaneous notices too numerous to be classified. Advertising by outsiders is mainly done by the manufacturers of patent medicines, beverages, and foods, and by the great transportation companies. The amount of this class of advertising in the daily papers is increasing, and the increase is one of the most noticeable tendencies recently apparent.

The great body of periodical publications has always been issued weekly. During the last sixty years weeklies have maintained a pretty steady proportion of the whole number of periodicals in the United States, being 70 per cent in 1840, 75 per cent in 1850, 78 per cent in 1860, 73 per cent in 1870, 76 per cent in 1880, 72 per cent in 1890, and 73 per cent in 1899. A distinguishing feature in the country weekly is the "patent insides and outsides," begun in England as early as 1850, and in this country about 1860. "Plate matter" is another economy of the same nature, the plates instead of the printed papers being sent to the local publisher. In 1880 there were 3232 such weeklies, having an average circulation of 608 each, and in 1899 there were 7600.

Country weeklies stand in the same relation to their communities as the dailies to the cities. They form the sole periodical medium for the local advertiser, and depend largely upon his patronage for their existence. But, as in the case of the dailies, the amount of outside or "foreign" advertising which they carry is increasing.

According to the census of 1890 the sum of $126,000,000 was invested in the daily and weekly newspapers of the United States in that year. At the present time the sum is probably a half greater. There are now several metropolitan papers valued at not less than $3,000,000 each. In 1890 more than one hundred thousand persons were employed by the newspapers of the country to whom was paid $70,000,000 in wages annually.

The newspaper revenue amounted to $143,000,000 and was about equally derived from the two sources, subscriptions and advertising. In 1867 the estimated receipts from advertising were $10,000,000; in 1873, $15,000,000; in 1880, $39,000,000; and in 1890, $71,000,000. The gain from 1880 to 1890 was 82 per cent. This ratio has probably increased during the last decade, and the total for the year 1900 will be well on towards the $150,000,000 mark.

The monthly magazines have been the most striking feature of the press during the last twenty years. From 1880 to 1890 they increased 93 per cent in numbers, which was a much greater percentage than that of the dailies or weeklies. Their average circulation rose from 7834 to 11,317, and here also the increase was more rapid than in the case of the other two classes of periodicals. Since 1890 their increase in numbers has been slow — from 2247 to 2309, but their circulation has grown prodigiously. This has been due to the establishment of the new ten-cent magazines and the great reduction in price of the older ones.

The circulation claimed by the 160 leading monthlies varies from 5000 to 1,250,000, aggregates 25,100,000, and averages about 157,000 each. That is one and a half for every family in the United States. One-half of them claim a circulation of 100,000 or over. Fifty-eight, or about three-eights of the whole number, are published in the city of New York. Boston has 15, Philadelphia 12, and Chicago 10. Fifteen are published in the state of Maine, and claim a combined circulation of 5,600,000. By the census of 1890 Maine ranked third in the circulation of its monthlies. Needless to say, not all of these are of the highest class, some of them being on the *index expurgatorius* of the Canadian postoffice.

The magazines began to be used for advertising about the time of the Civil War. The first advertisement appeared in the *Atlantic Monthly* in February, 1860, and in *Harper's* in July, 1864. During the last ten or fifteen years this advertising has taken on a new character and increased immensely. The greatest skill in composition is joined with constant improvement in the processes of illustration, so that the advertising pages have become as attractive as the literary portion. It is a commonplace, not much exaggerating the fact, that "everybody reads the advertisements first."

The following table, made up from magazines taken at random, shows the relative amount of advertising and reading matter: —

	Pages Advertising.	*Pages Reading.*
Century, July, 1889,	68	158
Scribner's, June, 1890,	106	130
Review of Reviews, April, 1895,	71	126
McClure's, November, 1897,	139	96
Century, November, 1898,	102	160
Harper's, October, 1899,	112	168

In none but the *Century* for July, 1889, was the advertising less than half the reading, and the average is five pages of advertisements to seven of reading. Without doubt the thing is being overdone, and there are already indications of a reaction. One of the best monthlies never inserts more than one page of advertisements to two pages of reading.

To illustrate the growth of magazine advertising the following table is given, showing the number of pages of advertisements, and number of advertisements, in *Harper's Magazine*, since their first appearance in it in 1864, taking the month of October wherever a copy of that month's issue was accessible: —

Date.	Pages Ads.	Number Ads.	Date.	Pages Ads.	Number Ads.
1864	3 1-4	11	1885	11 1-2	62
1865	2	5	1886	20	97
1866	3	19	1887	37	135
1867	6	30	1888	54	193
1868	7 1-3	20	1889	48	237
1869	5 1-3	35	1890	75	348
1870	4 1-2	21	1891	113	409
1871	3 1-2	30	1892	90	403
1872	2	20	1893	84	307
1873	1	7	1894	76	353
1874–80	No advertisements.		1895	80	374
1881	Not accessible.		1896	76	329
1882	1 1-4	15	1897	81	348
1883	8 1-2	53	1898	83	330
1884	8	43	1899	112	322
			1900	110	294

Reading matter ranged from 136 pages in the earlier numbers to 168 in 1899. The proportion of advertising was insignificant until after 1885. The effects of hard times on

advertising could have no stronger illustration than the blank years 1874–1880; and it is marked in the years following 1892.[1]

While the periodical press may be considered as the main part of the great stream of printed advertising, its volume is swollen by tributary streams, and by occasional and somewhat irregular down-pourings. Of this occasional literature we may distinguish six classes — the almanac, the calendar, the handbill, the circular, the catalogue, and the booklet.

Almanacs, first sent out by insurance companies in England, have long been in use as advertising mediums.[2] They are especially favored by the patent medicine manufacturers. In St. Louis alone half a dozen of the largest firms send out annually two million almanacs each. The total output of that city is about 20,000,000 yearly.[3] But this is put in the shade by the issue of *Ayer's Almanac* in 1898, which is said to have been 25,500,000 copies.

Similar to the almanac in its nature is the calendar, which has had great popularity. Its value lies in the facts that it lasts a long time, is kept in a conspicuous place, and is constantly referred to. The insurance companies are the largest users of calendars, some companies spending as much as $20,000 a year upon them. Local printers, coal dealers, and other advertisers give them to their customers, and sometimes to all who call for them.

As its name implies, the handbill is given out by hand on the street or at the door. Its use is mainly local, for some special sale of merchandise, for auctions, and for entertainments. It consists of a single leaf printed on one side only. It was formerly much used, and at the closing out of the English lottery in 1826 was distributed by the million. The

[1] For the privilege of using his files of *Harper's* I am indebted to Mr. J. B. Humphreys of Providence. The practice of libraries, and of some publishers, of binding magazines without the advertising pages, is to be deplored; for they are invaluable in the study of social conditions.

[2] *Every Saturday*, June 6, 1868.

[3] A. C. Cantley, *Printers' Ink*, August 17, 1898.

daily newspaper has largely taken its place, and it is consequently much less used in cities than in towns and villages.

A good deal like the handbill in its character is the circular, being used on special occasions, particularly to introduce some new book, a new type of standard article, or as a condensation or selection from a catalogue. The loose "inset" leaf or leaves, so much in vogue in Great Britain, placed in magazines, is properly a circular, since the magazine acts merely to distribute it. Both hand-bill and circular are often simply price lists.

Catalogues are expanded price lists, differing from them in that they are more fully descriptive of the goods advertised. They were originally for distribution among the trade, but have now gone beyond that, and are at present distributed by the million to consumers. The catalogue of one "mail-order" house has over a thousand pages, and contains descriptions of over 75,000 different articles; in another more than 100,000 articles are listed. Numbers of firms selling at wholesale in the cities of Boston, New York, and Chicago have discarded traveling salesmen altogether and are now selling by catalogue.[1] This is a movement the possibilities of which are of the greatest importance in the commercial world.

The booklet is a recent development among the means of advertising. It is generally used either to describe some single article or line of goods, or to describe a factory or process. It is prepared with great attention to style, typography, and illustration. The advertising experts find here a favorite field for the exercise of their abilities. Booklets are at present in great favor among advertisers and the public because of their attractive appearance and the terse style of the English used in them.

Lithographed work has the picture as its chief feature, supplemented by appropriate reading matter. The litho-

[1] *Profitable Advertising*, August 15, 1898, p. 128.

graphs are distributed in packages of goods, and by dealers at the store, or they are hung up in conspicuous places.

Advertising in street, roadside, and field, technically called "outdoor advertising," is carried on by means of store signboards, posters, painted signs, small movable signs, stereopticons, electric signs, and by various devices in air and water.

Signboards on the store are among the oldest and most permanent forms of advertising. It is estimated that there are $3,000,000 worth of signs in the city of New York alone, and that the brewers of that city furnish the saloons with $500,000 worth of signs each year. There is a regular craft of sign making.

Posters are of ancient origin. Callades, a Roman artist, is said to have depicted actors in their favorite parts upon the *alba* on the walls at Rome.[1] Posters have always been the special advertising medium of the theatre and other entertainments. P. T. Barnum began their use in this country about 1840, and was soon followed by the other circus managers.[2] Since the Civil War they have come to be used to advertise goods, and within a few years these "commercial" posters have begun to predominate.

Artistic posters arose in France about 1836.[3] Cheret, who is called the father of the modern poster, began his work about 1867, and during the last quarter of a century great attention has been given to the making of posters there. It is said that there are over two hundred artists in Paris engaged in this work. In all Europe and in America there has been a "poster fad." Extensive collections are made by the devotees of the cult. Many exhibitions of posters have been held, local, national, and international. While much of this effort has been abortive, yet it has on the whole appreciably raised the standard of poster making, very markedly so in France, where an inartistic poster is said to be soon torn down.

[1] *Pictorial Posters*, by Charles Hiatt, London, 1895.
[2] *Printers' Ink*, September 14, 1898.
[3] *Pictorial Posters*, by Charles Hiatt, London, 1895.

Billboards, or hoardings, as they are called in England, are the usual means of displaying posters. In the early period of the business it was one in which individual initiative had full scope. The billposter placed his bills where he dared, by day or by night, running his chances of their being torn down by the irate owner or posted over by his competitor. There is now usually one billposter or company in each city, although in the larger cities there are sometimes competitors. There are several general billposters of large capital in the United States who employ an army of men and own space and have facilities for covering any state or number of states. They have brought billposting to a science.[1] A posting machine has recently been invented which can be operated by one man.[2]

In England there is a "Society of United Billposters" numbering 600 members.[3] In America there are state and sectional associations, and also the "Associated Billposters of the United States and Canada." The latter hold an annual meeting, make rules for the regulation of the business, and fix a schedule of prices which depends upon the size of the city in question, the number of sheets in the poster, and the length of time it runs. There are about 700 members in it, and about 3500 in the local associations.[4] There are two monthly journals, both very creditable in their contents and general tone. Attempts have been made to start a billposting trust, and a corporation was formed with this intent in New Jersey in September, 1899.

Street car advertising has been in existence in the United States about twenty-five years. It has seen a great increase during the last ten years, and is now thoroughly systematized and consolidated in the hands of a few firms which purchase the advertising rights of the street car companies by the year.

[1] Fowler, 764–65.
[2] *Printers' Ink*, August 23, 1899.
[3] *Publicity*, Hull, England, August–September, 1899.
[4] *Printers' Ink*, August 23, 1899.

The rates vary from one cent a car per day upwards, according to the length of the contract and the number of passengers carried. One of these companies claims to control 14,000 cars in 100 cities; another controls over 4500 cars in 40 cities. A regular system of inspection is maintained by large advertisers to see that the cards are in their places and are not defaced. Steam passenger cars are not used for advertising purposes in the United States. There are, however, special advertising cars, such as those of Montgomery, Ward and Co. of Chicago, and the theatre and circus advance agents. The outside of freight cars has long been used by shippers to display large cards and posters while *en route*. Sometimes a special train is made up by a single large manufacturer, and the whole is made a moving advertisement whose coming is heralded in each city and town through which it is to pass. One large western railroad system has now restricted freight car advertisement to a card or poster not to exceed very moderate dimensions. It is to be hoped that the bewildering maze of cards with which the inside of English railroad stations is plastered will not find its counterpart in the United States.

In retail merchandising, store and window display is second only to the newspaper in its importance as a means of advertising. The spacious and well-lighted store, with convenient floor plan, the systematic and attractive arrangement of goods upon shelves and counters, plainly ticketed with name and price, the general neatness of the clerks and surroundings — all act as a standing invitation to the public to come in and buy. Special displays of the goods in the stores are made at "openings," held at seasonable times. Crowds throng the store on such occasions.

Window decorating has seen a phenomenal development within a decade or two, especially in the large stores of the cities. It has become a vocation, recognized and well paid by merchants. There are about 1500 men in the United

States who are engaged in it,[1] besides thousands of merchants and clerks who devote a portion of their time to this work. The National Association of Window Trimmers held its first annual meeting at Chicago in August, 1898.[2] It has members in almost every state. There are two journals exclusively devoted to the subject.

Under the head of personal advertising we shall consider that class of advertising in which the individual person, by his voice, by gestures or other actions, by wearing or carrying the advertisement, or by showing goods which he carries with him, attracts the desired attention. The public crier of ancient days exists only as a relic, but the individual peddlers, crying their own wares, still flourish, and in the United States have largely increased in numbers in recent years. There are the hawkers of fruits and vegetables, so numerous in the summer season; the peddlers of small wares; the soap peddlers and collectors of refuse; the itinerant tradesmen, like scissors grinders and umbrella menders; the venders of quack medicines and novelities who take their stand in the street or public square and advertise their wares by word of mouth; and, finally, newsboys on the streets and in the railroad trains.

Sandwich men, or "banner packers," as they are known to the craft, were common in London fifty years ago,[3] and doubtless had existed much earlier. From one to fifty men parade the streets and form a conspicuous advertisement. There are estimated to be from 1000 to 1200 sandwich men in the city of New York alone.

"Demonstrators" have become an important factor in advertising during the last few years. Manufacturers employ them, sending them about from city to city and from fair to fair by schedule, often having a score or more at work continually. Demonstration is for the most part done by young

[1] *The Show Window*, October 10, 1898.
[2] *Art in Advertising*, September, 1898.
[3] *Dublin Review*, September, 1849.

women. A school has been established in Boston which teaches and finds places for demonstrators, for whom, if capable, there is an active demand among the large advertising firms.[1] It is estimated that there are now 10,000 demonstrators in the United States.[2]

Commercial travelers have a double function, advertising and selling. The proportion in which the two are combined varies in different businesses, according to the amount of advertising done in other ways. The tendency is, as far as possible, to substitute printed matter for the oral representations of the commercial traveler, and to sell by means of order blanks sent with trunks of samples, or by illustrated catalogues. In 1898 there were 28 large houses in New York, 17 in Boston, 21 in Chicago, and many in other cities which had discarded "drummers" altogether and sold only by catalogue.[3]

The Commercial Travelers' National League is a strong general organization, besides which there are numerous organizations by localities and by lines of goods. The census of 1890 returned 58,691 persons engaged in the business. The president of the league, in his testimony before the Industrial Commission, June 16, 1899, stated that those figures were grossly incorrect, and that in 1899 there were 350,000.

The means of advertising all resolve themselves into two classes, in the first of which the goods themselves are placed before the potential buyer, and in the second a representation of the goods is made. Under the first head come store and window display, most "personal" advertising (*e. g.*, demonstrators and commercial travelers) and the distribution of samples at the house and at fairs. This method is most primitive, and has its types in the fairs, markets, and traveling packmen that have existed from early times. Naturally oral description goes with it. Written description was next

[1] *Printers' Ink*, "Boston Correspondence," October 19, 1898.
[2] F. A. Heywood in *Printers' Ink*, July 12, 1899.
[3] *Profitable Advertising*, August 15, 1898.

in development, but did not go far until the art of printing was perfected. Pictures have always been used in a rude way, but not advantageously or effectively until recent years.

Of all the mediums described the periodical press easily stands first in importance. Store and window display is doutless a better means, for both buyer and seller, but it is limited in its application. The printed page goes everywhere and at a minimum of cost.

THE THINGS ADVERTISED.

We shall now view our subject from another standpoint—the nature of the things advertised. Raw materials and unfinished products do not play a conspicuous part in advertising. The reason appears to be that they are generally produced and sold by the many but bought and used by the few, and advertising exists only where the many buy and use.

The means of transportation have long been advertised. The first stage coach notices in England appeared in the year 1658, almost two centuries and a half ago. Until recent years this advertising has been done in the form of notices of the departure and arrival of stage coaches and other vehicles, of vessels for domestic and foreign ports, and railroad time tables. Shipping notices were numerous in the American papers of the 18th century; and they have always been a feature of the first page of *The Times* in London.

Today, in addition to the mere statement of fact of the time-table type, we find railroad and steamship lines using all the mediums and devices known in order to attract passengers, and often adopting those general and far-reaching methods which are indirect and distant in their results.

A certain great system prints in newspapers sketches of its line by well-known literary men. When a paper prints a good description of a town on the line the company buys hundreds or thousands of extra copies. Every year one or

more press associations travel over the line as its guests. The company publishes a monthly paper of which 50,000 copies are sent to possible buyers of land. It also issues books of farming, summer resorts, and shooting and fishing. It uses lithographs, posters and hangers where people are illiterate or papers few. Photographs of landscapes, industrial enterprises, and people are prominent in its advertising. It has sent a company of entertainers and a biograph show through parts of the country; fox hunts and conventions of settlers and insurance agents are other features.

Industrial agents in every town along the line answer inquiries concerning their locality, and induce owners of property near the road to keep it neat and attractive. The station agents beautify the stations and their surroundings, grass plots and flower beds being carefully cultivated. Circulating library cars visit each town once a month, and an industrial train in spring and fall, when lectures on soils, planting, etc., are given, improved implements are shown, and demonstrations in canning are given. By these indirect means, far reaching in their nature, and the more powerful as they are remote from the end in view, do the great railroad lines make themselves known to multitudes of people. The volume of freight advertising is much less than that of passenger advertising. The reason for this is the fact that freight traffic is incapable of that stimulation to which passenger traffic, involving personal gratification and luxury to so large a degree, is susceptible.

Finished products, or "consumer's goods," are the subjects of the great bulk of advertising. Among foods the advertisements of canned fruits and vegetables and pickles and preserves of all sorts are very prominent in the magazines and street cars, and on posters and painted signs. A well-known sauce firm contracted in April, 1899, to have five hundred and seventy cities in the United States posted for three months with an "eight-sheet" poster advertising a

single product; the cost was $50,000.[1] Another pickle, sauce, and preserve firm, whose factories and warehouses cover 23 acres, employs 272 traveling salesmen and many demonstrators, and uses millions of lithographed cards, hangers, calendars, etc., and an immense amount of street car space. Its operations extend over all English speaking countries on the globe and all Latin America besides. It made an extensive exhibit at Paris, distributing several million samples.[2]

Cereal foods are widely advertised. Several companies spend in the region of $500,000 a year each, and their products have become household words. Some of them are international advertisers on a great scale. Cooked cereal foods have also entered the field. The latest and greatest advertising exploit in this line is that of the National Biscuit Company; $100,000 worth of advertising was contracted for, mainly in newspapers and posters. It began in January, 1899, and in a few weeks the factories were 480,000 orders behind, and the company was compelled to stop advertising for a time in order to catch up.[3]

Tea, coffee, and cocoa have been advertised in England for two centuries and a half, they being among the earliest merchandise to be offered for sale in the newspapers. The leading tea dealer has become an international character through his tea advertising, which extends over all English speaking countries. Others are scarcely less widely known. Coffee has recently been advertised on a larger scale than ever before in the United States, partly because of the competition of the various substitutes, but more because of the contest between rival producers. Cocoa and chocolate manufacturers are among the most extensive of all advertisers. French, Dutch, English, and American brands rival each other in their claims to public attention. Numerous preparations of cereals as substitutes for coffee have been placed

[1] *Printers' Ink*, April, 1899.
[2] *Ibid.*, November, 1898, p. 22.
[3] *Western Advertiser*, July, 1899.

upon the market during the last fifteen years, and a few of them, advertised on a national scale, seem destined to be more than temporary. One at least is reckoned among the largest advertisers in the country.

Baking powder has long been prominent in all mediums of advertising. Intense rivalry existed among the baking powder companies for many years, accompanied by a most extraordinary amount of advertising. Now that the large companies have combined the advertising continues without much abatement. The great trade in certain brands was built up by long advertising, and in order to maintain these brands in their position that advertising must go on. The Royal Baking Powder Company is said to have spent $800,000 a year.[1] What the combined companies spend it is too early to ascertain. The business is of international extent. They use "practically every newspaper in the world." In Mexico one brand has been so well advertised that its name is a synonym for baking powder.[2] It was one of the pioneers in international advertising.

Liquors and tobacco, appealing to the appetites, being of general use, and of great variety as to kind, quality and form, offer one of the most favorable subjects of advertising. The advertising of beer has grown with great rapidity, as it is a relatively new beverage in America. Several companies rank among the most extensive advertisers in the world, for they operate on an international scale. At least one of them spends $500,000 a year.

Tobacco, being in more general use than liquors, offers an even wider field; and being less under legal and moral ban, its public advertisement is more extensive and more general than that of liquors. With the growth of large manufacturing companies, each pushing its own brand of cigars, cigarettes, and tobacco, the advertising increased rapidly.

[1] C. A. Bates, "Short Talks on Advertising."
[2] *Printers' Ink*, August 9, 1899, from Mexican *Herald*.

The formation of the American Tobacco Company does not appear to have much diminished the amount, if at all. This may be partly owing to the existence of very large and powerful competitors outside the trust, but far more, without doubt, to the necessity of keeping the names of established brands before the public. Moreover, the company has had success far beyond its expectations with certain new brands of cigars which it has advertised extensively, and is now going forward in this line on a great scale. It is said to have appropriated $600,000 for advertising cigars alone in 1900.[1] During 1899 the advertisement of a single brand of cigars appeared on the billboards of every city and town in the United States for three months at a cost of $300,000.[2]

No department of advertising presents such interesting phenomena as that of patent medicines. Of the history of modern advertising since its beginning in England in the time of the Commonwealth, medicinal advertising may well say *quorum magna pars fui*. Beginning with its beginning, growing with its growth, medicines have remained its most constant factor, and today the largest advertisers in the world are patent and proprietary medicine makers. One of them is reputed to be spending $1,250,000 a year in newspaper advertising alone. His order for albums for 1899 was seven million copies.[3] The next largest firm spends upwards of a million a year. They advertise in all the principal countries on the globe. All Europe, North and South America, Asia, Africa, and the islands of the sea are invaded by them. They have a factory in the city of Mexico and one in Cuba. They advertise in practically every newspaper in the Central and South American countries, besides which they themselves publish a newspaper in each country and send it to sections in which the local newspapers are not well distributed.

[1] *Profitable Advertising*, September, 1899.
[2] *Profitable Advertising*, August, 1899.
[3] *Publicity*, May, 1899.

Millions of cards are also distributed by them annually in these countries.[1]

A considerable number of companies spend half a million a year. The general manager of one of them thus describes the way in which his company's appropriation was to be divided in 1899: "About $300,000 will be spent with the daily and weekly newspapers; about $50,000 with magazines and illustrated weeklies; about $50,000 with medical journals and other scientific and semi-scientific publications; about $50,000 in signs, billposting, and the like; and about $50,000 in the distribution of lithographic pamphlets, circulars, etc. It will cover all the large cities of the United States, Canada, Great Britain, and some smaller countries."[2]

About one-third of the total sales of retail druggists is made up of medicine.[3] Of 2583 general advertisers using the magazines and general weeklies, and tabulated by *Press and Printer* from January 1st to October 29, 1898, one-sixth of the whole number, 425, were makers of proprietary articles. Of 74 pages of advertising in the *Strand Magazine* for Christmas, 1898, patent medicines and remedies occupied 32 pages.[4] They occupy a large fraction of the space in the dailies taken by "foreign" (that is, not local) advertisers. Thus, 13 out of 23 "foreign" advertisements in the *Providence Journal* for January 26, 1900, were of this class.

One of its peculiar features is the publication of testimonials. Every large company accumulates thousands of them, which it publishes widely. The *New York Sunday Herald* for April 16, 1899, contained six pages of testimonials to the merits of a single medicine, and the *Journal* contained five pages. This was overwhelming in its magnitude, and is probably without parallel. The cost of the two was $9000.[5] Testimonials from prominent people are

[1] *Printers' Ink*, February 22, 1899, quoting *Advertising Experience*.
[2] *Profitable Advertising*, April, 1899, pp. 606-07.
[3] *Printers' Ink*, July 19, 1899.
[4] *Publicity*, January-February, 1899.
[5] *Printers' Ink*, May 3, 1899.

much sought and, it would appear, easily obtained, generally for a consideration. Men holding political positions and the owners of professional titles are apparently not averse to turning an honest penny in this way.

The free distribution of samples is another method much used by the patent medicine makers. It has given rise to a host of distributers, general and special, all over the country.

There are over two hundred soap concerns of fair size in the United States, a dozen of which are large advertisers, as are several English firms. There has been keen competition among them, resulting in the adoption of many schemes and devices to sell their goods. They are large users of lithographs, painted signs, tacked signs, picture cards, etc. One plan has been to give a sum of money to every church, philanthropic society, and the like, which collected a given number of coupons to be found only in the packages of soap. One company gives an article of furniture with every order for soap of a certain amount. Its sales are chiefly by mail.

A Chicago firm is stated to have contracted for $200,000 worth of advertising in western newspapers alone in 1899.[1] Several others spend from $300,000 to $500,000 a year,[2] and *Pears'* must be near the million mark. Many millions altogether are expended every year for soap advertising. In the summer of 1899, when the attempt was being made to form a trust, it was stated in the public prints by the promoters that $30,000,000 a year was thrown away by the soap manufacturers in this way. The amount was exaggerated, but one-half that sum would probably be within bounds.

Toilet articles appeal especially to women. They are advertised in the monthly and weekly periodicals, particularly women's papers, on the billboards, and in the street cars. The annual expenditure of one concern is $150,000 a year;[3] that of another is estimated at $200,000.[4]

[1] *Printers' Ink*, June 28, 1899.
[2] *Printers' Ink*, March 1, 1899, citing *The Advertising Man*.
[3] *Ibid.*, May 17, 1899.
[4] *Ibid.*, March 1, 1899.

Much general advertising of clothing has sprung up in recent years. Shoes are being especially exploited at the present time. A full back cover advertisement of a shoe for women recently appeared in a popular monthly at a cost of $4000 for the single issue. One of the best known advertisement writers expended $100,000 in advertising a certain shoe leather.[1] The manufacturers of a new shoe have contracted with an advertising agency to spend $50,000 a year for ten years in newspapers and trade journals to push the shoe in the United States and foreign countries.[2] In August, 1899, the advertisement of a well-known shoe began to appear in 7750 papers supposed to reach about 25,000,000 people in this country.

The general advertising of undergarments was begun about twenty years ago by a single firm acting as concessionaries of a German house. In a few years rivals sprang up, and today there are many advertisers of these goods of both foreign and domestic make. In *McClure's Magazine* for November, 1897, eight different ones appeared. The general advertising of men's clothing began about fifteen years ago. From 1889 to 1892 it was carried on on a large scale by one firm which expended from $75,000 to $80,000 a year. Since then men's suits and overcoats have become widely advertised by houses devoted to that line of goods, and by the mail order houses. A large wholesale hat firm in New York sells to retailers by means of circulars containing half tones of their various styles of hats. The retailers order from the circulars, and thus the firm saves the cost of the commercial travelers formerly employed. It claims to make a net saving of $18,000 a year by this means.

Among household implements sewing machines are advertised on a gigantic scale. They are used in the factory as well as in the home, but are preëminently a domestic imple-

[1] *Profitable Advertising*, October, 1899.
[2] *Ibid.*, April, 1899.

ment. One company sells 800,000 machines a year through its agencies in every city in the entire civilized world, employing 50,000 canvassers.[1] For a long time the company printed a monthly paper of its own — 1,000,000 each issue — and was a liberal patron of lithographing. It exhibits at all the great expositions, and uses almost every kind of newspaper, but its greatest advertising medium is the 50,000 canvassers. There are few if any instances in general merchandising in which the personal medium counts for more. The advertising outlay of this company is the largest in the world, amounting to several millions annually.

Fuel is not largely advertised, as the coal producers are to all intents and purposes a trust, agreeing together upon output and prices. Local dealers advertise to a moderate degree, and there are occasional examples of extensive local advertising.

Gas and electric lighting companies have as yet advertised but little, being generally secure in their monopolies, but already some of them are beginning to see that by advertising they can increase their business and profits, and are acting accordingly. A notable instance is that of the gas company in Philadelphia.

We now pass from those things which satisfy the primary needs for food, clothing, shelter, and care of the body, to articles used for recreation, and to satisfy the artistic and intellectual sides of human nature.

During the last decade vast sums have been spent in advertising the bicycle. Since 1889, when they first appeared there, the average number of bicycle advertisements in *Harper's Magazine* has been 6; in 1896, when the height was reached, there were 15. Every class of periodical is used, as well as the other means of advertising. Racing teams are a striking feature. In 1894 one firm spent $20,000 in selling 5000 bicycles; in 1895, over $75,000 to sell 20,000; and in 1896,

[1] *Printers' Ink*, June 14, 1899.

$145,000 to sell 40,000. Of the last, $10,000 was for catalogue, and $10,000 for racing team.[1]

Of the 2583 advertisements classified by *Press and Printer*, 266, or a little over ten per cent, belonged in the category of art products. These articles appear mainly in the magazines and weeklies. The advertising of silverware, musical instruments, and cameras is most prominent, there being numbers of firms of national reputation advertising in the standard papers, besides many which make a specialty of goods which are sold through the medium of the mail order journals.

For some years cameras have been quite widely advertised in the general mediums of all grades. In *Harper's Magazine* they were first advertised in 1884, and reached their height in 1889. The largest company now in existence, started in 1888, is capitalized at $5,000,000, and is estimated to spend about $750,000 a year in advertising.[2] This company gives prizes for pictures taken with its cameras. One year it held two exhibitions, one in New York and one in London, at a cost of $50,000. The name and catch phrase coined by this company have become a part of the vernacular.

Books, periodicals, and writing materials form about 15 per cent of the advertisements classified by *Press and Printer*, and the three were almost exactly equal in numbers, being 130, 128, and 124, respectively. For mediums by which to reach the public they are pretty closely limited to the magazines and general weeklies.

Books formerly depended very largely upon the personal medium for their advertising,—that is, upon agents and solicitors. Many well-known standard works of reference, as well as multitudes of cheaper and often worthless books, have been sold in this way. For the higher class of books, however, the day of the agent is passed, and his work is mainly done by the press.

[1] Fowler's *Publicity*, p. 171.

[2] *The Advertising Man*, cited in *Printers' Ink*, July 26, 1899.

The general advertising of periodicals is increasing, especially with the competition among the popular monthlies and weeklies. The *Ladies' Home Journal* and the *Saturday Evening Post* have probably been more extensively advertised than any periodicals in this country. The only paper to be compared with them in this respect is Robert Bonner's *Ledger*, forty years ago. The extent of his advertising was then without precedent; whole pages of daily newspapers were used by him to blazon forth the merits of the *Ledger*.[1] One such advertisement—probably the "Fanny Fern writes for the *Ledger* only"—cost him $60,000.[2]

Newspapers advertise themselves indirectly by connecting their names with some great undertaking, as the *Times* did in the exposure of the Tweed Ring in New York, and the *Herald* by sending Stanley to Africa to find Livingstone.

Certain makers of pens, ink, and paper are large advertisers, and have been so for many years. Fountain pens, perfected in recent years, appear in all general mediums, and the manufacturers of one of them, at least, must spend $50,000 a year in advertising it. But the advertising of the typewriter is the largest of all and ranks with that of the bicycle and the camera in its extent. It first appeared in *Harper's Magazine* in 1885, and reached its height in 1895, since which time it has somewhat fallen off. Since 1890 there have been from eight to fourteen different advertisements of this article in each number.

THE ORGANIZATION OF ADVERTISING.

We now pass to the active agents in advertising and their organization.

The advertiser is the central figure. There are all grades, from the hawker, who makes use of his own voice in crying directly to the public the wares which he carries in his pack,

[1] Philadelphia *Bulletin*, cited in *Printers' Ink*, August 16, 1899.
[2] *Bates' Advertiser's Guide Book*, September, 1884.

up to the executive of a great corporation with factories in several countries and storehouses of goods dotting the globe, who calls to his aid a dozen different agencies directly or indirectly connected with the desired end. The latter is the modern type.

In October, 1898, there were 2583 general advertisers making use of American periodicals.[1] This number does not include the insignificant concerns that use two or three lines in the cheaper publications, but the larger and more reputable ones. Probably there are nearly or quite 3000 in 1900.

Their geographical distribution is shown by the following table: —

Maine	21	Virginia, West Virginia	10
New Hampshire	15	North Carolina, South Carolina	3
Vermont	12	Georgia	5
Massachusetts	364	Florida	6
Rhode Island	23	Alabama	0
Connecticut	88	Mississippi	0
New York	863	Louisiana	4
New Jersey	49	Texas	4
Pennsylvania	187	Arkansas	0
Delaware	3	Oklahoma	0
Maryland	12	Tennessee	6
District of Columbia	16	Kentucky	8
Ohio	189	Wyoming	0
Indiana	43	Idaho	0
Illinois	367	Montana	0
Michigan	104	Utah	0
Wisconsin	52	New Mexico	0
Minnesota	25	Arizona	0
Iowa	16	Nevada	0
Missouri	36	California	16
Kansas	4	Oregon	0
Nebraska	6	Washington	13
North Dakota, South Dakota	0	Canada	6
Colorado	7		

Sixteen hundred twenty-two, or 63 per cent, were in the New England states, New York, New Jersey, and Pennsylvania. New York alone had 863, or 33⅓ per cent. Two thousand three hundred seventy-seven, or 92 per cent of the

[1] *Press and Printer*, October 29, 1898.

whole, were north of the Ohio and Mason and Dixon's line, and east of the Mississippi.

The twenty largest cities had the following numbers: —

New York	664	Philadelphia	130
Boston	243	San Francisco	8
Cleveland	24	New Orleans	3
Washington	16	Milwaukee	26
Minneapolis	13	Louisville	4
Chicago	308	St. Louis	26
Baltimore	10	Cincinnati	67
Buffalo	18	Pittsburg	16
Detroit	27	Newark	10
Jersey City	7	Omaha	3

New York, with 664, has 26 per cent of the whole; and together with Boston and Chicago has 1215, or over 48 per cent of the whole. Nothing could more strikingly show the concentration of business in the great centers.

Local advertisers are of course vastly more numerous than general advertisers. From the figures for a single city an estimate for the whole country can be made. From Bradstreet's and Dun's an estimate of the number of business firms can be formed, and from this some approximation to the number of advertisers obtained. One authority says that there are seventeen in every thousand of the population, or over a million in all; another says five hundred thousand, excluding the transient wants, and that two-thirds of them are constant. The latter seems to be within bounds; it would be an average of about twenty-three different advertisers in each of the 22,000 periodicals in the country. From the number of general advertisers already given it will be seen how vast a majority of all are local.

While the great majority of business men write their own advertisements the tendency is, as business grows in extent and complexity, to employ a skilled man to prepare them. During the last fifteen years this art has developed rapidly, furnishing a new calling for hundreds of men and women. The best of them are paid from $5000 to $25,000 a year.

ADVERTISEMENTS IN HARPER'S MAGAZINE FROM 1864 TO 1900.

	Dec. 1864.	Oct. 1865.	Nov. 1866.	Oct. 1867.	Sept. 1868.	Oct. 1869.	Oct. 1870.	Oct. 1871.	ct. 72.	Oct. 1873.	1874.	1880.	1881.	Nov. 1882.	Oct. 1883.	Oct. 1884.	Oct. 1885.	Oct. 1886.	Oct. 1887.	Oct. 1888.	A 18
Agents wanted	..	..	..	..	..	5	..	2	3	1				3	4	2	..	1	4	3	
Architects plans	..	..	..	..	..	..	1	..	..	..				..	1	2	1	1	..	..	
Art goods, silverware, etc	..	..	2	1	4	3	2	..	1	..				1	3	3	3	..	4	3	
Bicycles	..	..	..	..	..	..	..	..	..	..				..	..	..	..	..	..	..	
Books and publications	..	1	4	7	2	5	3	2	..	1				1	5	1	6	11	8	12	1
Building material	..	..	..	1	1	1	..	1	1	..				..	..	3	3	1	..	11	
Cameras	..	..	..	..	..	..	..	..	..	..				..	..	1	..	1	3	4	
Clothing	1	..	2	..	1	1	..	..	1	..				1	2	..	2	5	9	16	1
Educational	..	..	..	..	2	..	..	..	..	..				..	5	3	7	10	15	11	5
Financial	2	..	..	..	..	1	..	..	..	..				..	1	..	2	6	4	6	1
Food	..	..	..	1	1	..	..	2	1	..				..	1	3	3	9	12	12	1
Games	..	..	..	..	..	..	..	..	..	..				..	..	..	..	..	..	..	
Hotels and resorts	..	..	..	..	..	..	..	..	..	..				..	..	..	..	..	..	..	
House furnishings	2	1	4	5	3	10	4	5	1	..				1	6	1	5	8	17	13	2
Liquors and tobacco	..	..	..	..	..	..	..	..	..	..				..	..	1	..	..	2	1	
Live stock	..	..	..	..	..	..	1	..	..	..				..	1	..	..	2	..	..	
Machinery and tools	..	..	..	..	..	..	..	..	..	..				..	..	..	..	..	..	..	
Medical and proprietary	4	2	3	7	4	5	1	2	4	3				..	4	4	4	15	21	17	2
Miscellaneous	..	..	..	..	..	..	3	7	1	1				2	5	..	3	2	2	3	
Music and musical instruments	2	..	3	1	1	1	3	1	1	1				1	3	5	3	1	2	6	
Office furniture and supplies	..	1	2	..	..	..	..	..	1	..				1	..	..	..	3	4	3	
Railroad and steamship lines	..	..	..	..	..	..	..	..	..	..				..	2	..	1	2	2	..	
Real estate	..	..	..	..	..	..	..	..	..	..				..	..	..	..	..	..	..	
Seeds and plants	..	..	..	1	..	2	1	5	4	..				3	..	2	1	1	1	3	
Soaps and toilet articles	..	..	..	1	1	1	1	3	1	..				1	4	6	10	9	14	16	1
Sporting goods	..	..	..	..	..	..	..	..	..	..				..	..	1	1	..	..	6	
Typewriters	..	..	..	..	..	..	..	..	..	..				..	..	..	1	2	5	5	
Vehicles	..	..	..	..	..	..	..	..	..	..				..	..	1	..	..	..	..	
Writing materials	..	..	1	5	..	..	1	..	..	..				..	5	4	6	7	6	11	1
Total number of advertisements	11	5	21	30	20	35	21	30	20	7				15	52	43	62	97	135	193	23
Total pages of ads	3½	2	3	6	7¼	5¼	4¼	3¼	2	1				1½	8½	8	11¼	20	37	54	4
Illustrated advertisements	5	1	4	7	6	9	7	8	7	3				..	..	..	..	44	89	..	12

No advertisements appeared from 1874 to 1880.

Not accessible.

Previous to 1886 there were 1 to 5 full-page advertisements in each issue. In 1888 there were 10 full-page advertisements, 1 two-page, and 1 four-page; in 1891, 21 full-page, 1 two-page, and 2 four-page; in 1899, 34 full page, 6 two-page, 1 three-page, and 1 four-page.

There have always been 5 to 21 pages — usually 12 — of the Harper's own announcements.

Blue-print cuts were used in 1890 only. Half-tones first appeared about 1895.

Harper's announcements began to occupy the front pages in 1883; school and college advertisements

Reading matter has ranged from 136 to 168 pages.

ADVERTISEMENTS IN HARPER'S MAGAZINE FROM 1864 TO 1900.

ct. 72.	Oct. 1873.	1874.	1880.	1881.	Nov. 1882.	Oct. 1883.	Oct. 1884.	Oct. 1885.	Oct. 1886.	Oct. 1887.	Oct. 1888.	Aug. 1889.	O 18
3	1				3	4	2	..	1	4	3	1	
..	..				..	1	2	1	1	..	..	1	
1	..				1	3	3	3	..	4	3	5	
..	..				..	..	..	..	..	..	..	4	
..	1				1	5	1	6	11	8	12	11	1
1	..				..	..	3	3	1	..	11	5	
..	..				..	..	1	..	1	3	4	8	
1	..				1	2	..	2	5	9	16	19	2
..	..				..	5	3	7	10	15	11	52	7
..	..				..	1	..	2	6	4*	6	10	1
1	..				..	1	3	3	9	12	12	12	1
..	..				..	..	..	..	..	..	..	1	
..	..				..	..	..	..	..	..	..	..	
1	..				1	6	1	5	8	17	13	27	5
..	..				..	..	1	..	..	2	1	..	
..	..				..	1	..	..	2	..	..	4	
..	..				..	..	..	..	..	..	..	6	
4	3				..	4	4	4	15	21	17	24	3
1	1				2	5	..	3	2	2	3	2	1
1	1				1	3	5	3	1	2	6	8	1
1	..				1	..	..	..	3	4	3	1	
..	..				..	2	..	1	2	2	..	2	
..	..				..	..	..	..	..	..	..	..	
4	..				3	..	2	1	1	1	3	4	
1	..				1	4	6	10	9	14	16	11	1
.	..				..	..	1	1	..	..	6	1	
..	..				..	..	..	1	2	5	5	7	1
..	..				..	..	1	..	..	..	..	2	
..	..				..	5	4	6	7	6	11	11	
20	7				15	52	43	62	97	135	193	237	34
2	1				1½	8¼	8	11¼	20	37	54	48	7
7	3				..	..	..	..	44	89	..	123	

No advertisements appeared from 1874 to 1880.

Not accessible.

Blue-print cuts were used in 1890 only. Half-tones first appeared about 1895.

Harper's announcements began to occupy the front pages in 1883; school and college advertisements in 1889;

Reading matter has ranged from 136 to 168 pages.

Aug. 1889.	Oct. 1890.	Nov. 1891.	Oct. 1892.	Oct. 1893.	Oct. 1894.	Oct. 1895.	Oct. 1896.	Oct. 1897.	Oct. 1898.	Oct. 1899.	Oct. 1900.
1	2	1	1	1	..	..	1	..	..	..	1
1	2	7	3	4	1	2	..	..	2	2	1
5	5	23	28	32	20	22	9	12	13	14	3
4	4	5	7	6	2	8	15	7	..	2	..
11	16	42	11	20	14	11	15	22	16	7	29
5	8	15	23	24	18	24	19	19	14	15	5
8	5	7	..	4	4	6	4	2	5	4	3
19	23	36	32	9	19	13	14	22	26	24	17
52	73	45	94	55	106	131	123	123	119	113	93
10	11	15	11	8	7	7	6	5	4	5	7
12	17	21	17	22	17	15	15	16	15	23	22
1	4	5	4	4	4	7	1	3	4	3	2
..	..	..	6	2	2	2	2	4	5	1	1
27	51	45	26	19	30	10	12	11	16	12	17
..	1	..	3	3	3	3	2	3	4	7	4
4	3	1	1	1	1	1	..	..	..	..	..
6	6	10	5	3	2	5	2	4	2	3	4
24	30	40	29	12	27	27	29	27	22	18	16
2	11	5	24	18	20	19	11	10	8	15	8
8	13	16	18	10	7	7	7	10	10	11	7
1	7	10	4	7	6	9	5	3	4	4	4
2	2	2	3	4	3	2	3	6	7	8	12
..	..	..	4	1	3	..	..	1	..	..	..
4	9	4	11	5	6	3	2	4	3	1	..
11	14	38	11	12	14	16	14	15	16	16	15
1	5	3	4	..	2	..	2	4	..	1	..
7	11	9	11	13	8	14	9	9	10	8	9
2	2	5	4	3	3	5	2	2	2	3	7
11	7	4	8	5	4	5	5	4	3	7	7
237	348	409	403	307	353	374	329	348	330	322	294
48	75	113	90	84	76	80	76	81	83	112	110
123	..	250	..	..	..	..	..	..	166	..	129

nts in 1889; and commercial advertisements in 1890.

There are others who prepare advertisements to order. They will also plan a whole advertising campaign for those whose business is not large enough to employ one writer exclusively. Even here the principle of division of labor asserts itself, and some are found devoting themselves to one line of writing, as in the drug business, for example.

At least two schools of advertising have been established. One is in Chicago, conducted by two experienced writers, and its curriculum includes ninety-eight divisions of study grouped under the following headings: Essays; Illustrating and Engraving; General Advertising; Local Advertising; Making and Displaying; "Adwriting"; Mail Order Advertising; Outdoor Publicity; Printing and Lithography; and Special Sales and Openings.[1] The other school is in Indiana.[2] Both give instruction by mail as well as at the school. Besides these regular schools the columns of the metropolitan dailies occasionally contain an offer by an experienced advertisement writer to teach the art to individuals.

While these enterprises encounter a good deal of contempt and even opposition, it would seem that, conducted in a practical way, they ought to find a field of work. Systematized knowledge and experience, obtained under intelligent guidance, are acquired more rapidly and to better advantage every way than by individuals haphazard and alone, provided that the pupils are desirous of obtaining them.

In conclusion it may be said about the advertisement writer that it was the general agreement among the two hundred and fifty large advertisers represented in Fowler's *Publicity* that an expert was necessary for their success.

Closely related to the class of advertisement writers, and in fact merging into them, are the advertising agents, whose function it is to act as an intermediary between the advertiser and the newspaper or other medium. The earliest agent in America is said to have been Orlando Bourne, who

[1] H. B. Howard, in *Printers' Ink*, May 24, 1899.
[2] L. D. Sampson, in *Printers' Ink*, June 7, 1899.

began business in New York in 1828. In 1841 Volney B. Palmer established himself in the same city,[1] and the next year John W. Hooper and Co.[2] Palmer soon branched out to Boston and Philadelphia. Other firms were established in course of time, and at the present day every large city has several. New York has always been the center, and in 1871 one-half the agents were in the *Times* building in that city and did nine-tenths of the annual business of the country.[3]

Among large concerns the tendency is to have an advertising manager who takes charge of that side of the business, planning the campaign, furnishing the main ideas to be worked out by his assistants, and placing the advertisements direct, without the intervention of outside agents. However, the agents still handle about three-fourths of all the general advertising done.[4] The tendency to specialization manifests itself among the agencies in that certain ones devote themselves to work with mediums of a particular class. There are two in New York whose special field is the trade journals. At the other end of the line are the so-called "special agents," representing one or more publications and soliciting business from the advertisers. Chicago and New York are the centers of this business, the former city having an organization, the Agate Club, whose object is to develop advertisers in the West.[5]

Of the periodical press, which is the main reliance of the great majority of advertisers, we have already spoken. For information concerning it, outside of its own locality, the advertiser depends upon the directories published by the agencies. The two oldest and most comprehensive are *The American Newspaper Directory*, established in 1869, and *Ayer's American Newspaper Annual*. They are bulky volumes of thirteen to fifteen hundred pages each, containing

[1] Palmer's "Rules and Hints for Advertising."
[2] Rowell's *Advertiser's Gazette*, January, 1871.
[3] *Ibid.*
[4] Fowler's *Publicity*, p. 352.
[5] *Advertising Experience*, August, 1898.

lists of papers in the towns and cities of each state, arranged alphabetically, and giving the size, frequency of issue, rates, circulation, publisher's name, and other data. They also give lists of the different classes of papers, as of dailies, religious weeklies, and agricultural papers.

Thirty-five years ago no complete list was published. A few large advertisers had compiled their own, which they jealously guarded, and the agencies had them and treasured them as their most valuable possessions. The number of papers in the first directory in 1869 was 5000; those for 1899 contained over 21,000.

Engaged in the distribution of periodicals there are 3600 people in the United States who are exclusively newsdealers; and 10,000 who are "booksellers, newsdealers, and stationers" in the United States and Canada.[1] The agency of the American News Company in the cheap and expeditious distribution of periodicals is of the highest importance. Beginning in a small way in New York in 1864 it afterwards established branches in other cities. Meanwhile different companies had been formed in New York, Philadelphia, and Chicago, but they were eventually all combined with it to form the greater company.[2] The branches generally retain a local name, as the New England News Company of Boston and the Central of Philadelphia do, but they are simply parts of the one main company. The company distributes 2000 American newspapers and periodicals, more than 500 English, 100 French, 80 German, and a smaller number of other publications. Its yearly business is about $15,000,000.[3] It is an indispensable convenience to hundreds of publishers in that it buys their whole editions outside of what is mailed to regular direct subscribers: the edition is off their hands and paid for the moment it leaves their doors. It effects an immense saving by putting into one package all the different

[1] Trow's Addressing Co., cited in *Printers' Ink*, July 5, 1899.
[2] *Art in Advertising*, cited in *Printers' Ink*, March 15, 1899.
[3] *Mail Orders*, cited in *Printers' Ink*, July 26, 1899.

publications destined for one dealer in a village or city and systematizing the whole work. Needless to say, it wields almost despotic power over the destinies of the publishing houses, especially the newer and weaker ones, since it is practically impossible for a periodical to be distributed without its assistance.

Newspapers and periodicals for the railroad trade are distributed by the Union News Company, which is the railroad branch of the main company.

If the advertiser sends out circulars, catalogues, etc., a list of addresses is necessary. These he obtains from the "letter brokers" and owners of address lists at so much per thousand. He can obtain lists of any class of people, of any occupation or degree of wealth, in any city, locality, or state. If he so desires, the addressing companies will furnish addressed envelopes or wrappers, fold and enclose the circular, and print the "return card" on the envelope, relieving him of all care in the matter. The address lists are obtained from letters written to publishers and advertisers, from local and trade directories, the commercial agency books, and the newspapers,—the latter through the "press clipping bureaus."

The clipping bureaus make a business of reading all sorts of publications for all sorts of purposes. Originally they worked for musicians and other public performers who wished to collect press comments and notices of themselves, but now the scope of their work is unlimited. They chronicle births, marriages, deaths, casualities, and sicknesses from the daily and weekly papers for the benefit of makers of infants' foods, dealers in duplicate wedding presents, monument makers, artificial leg makers, etc. Projects for bridge and factory building and for all kinds of construction are noted for the use of builders and dealers in building material. Today there are bureaus in all the large cities of the country. One has branches in several cities, and still another, which claims to

be the original one, has offices in the European capitals, Sydney, the city of Mexico, and New York. To illustrate the magnitude of the business it may be stated that a Chicago bureau prints a list of over 3500 dailies and weeklies and 110 magazines which it reads and clips. Another claims to clip 15,000 copies of papers every week and send out 10,000 items daily. A third clips 10,000 copies a week and employs fifty people. The labor is minutely sub-divided, one set of workers reading and marking, and others clipping, pasting, sorting, etc. There are about twenty bureaus in the country, with a total of about three hundred employees.

The advertiser may desire a house-to-house distribution of his printed matter or samples. If so he employs the professional distributor, whose business, fast becoming highly organized, has been sufficiently described already. The tendency towards consolidation is also marked among the bill-posters and street car advertising agents, but among the other coadjutors of the advertiser it does not appear. "Demonstrators" are too new as yet, and possibly their sex is a reason for the delay to organize. Window trimmers and commercial travelers are organized, the latter having been so for a long time.

Like every other group of people having a common interest those concerned in advertising have their journals, including newspapers covering the whole field and organs of special branches of the business. The oldest and largest in circulation is *Printers' Ink*, established in New York in 1888. It is a small, double column, 48 to 90-page weekly, containing interviews with practical advertisers, articles on various aspects of advertising, letters, news notes, editorials, a "department of criticism," and from ten to forty pages of newspaper and agency advertising. Being the oldest paper of the kind and very ably conducted, it maintains the leadership. It has a circulation of about 20,000 copies. It is said to have had over two hundred imitators, most of them short-

lived, and published by large advertisers, by "adwriters," or as adjuncts of advertising agencies. Some of them, however, are journals of real merit and of a high tone in their editorial discussions. Two or three are published in England, one in Bombay, and one in Melbourne. As far as ascertained there are none in France or Germany. Following is a list of forty-two, collected by the writer, all of which were in existence at last accounts: —

The Ad Book, San Francisco, Cal.
Adology, Detroit, Mich.
Ads, Louisville, Ky.
Ad Sense, Chicago, Ill.
The Advertiser, Cleveland, Ohio.
The Advertisers' Guide, New Market, N. J.
Advertising Experience, Chicago, Ill.
Advertising for Druggists, North Adams, Mass.
The Advertising Man, New York.
Advertising Success, New York.
The Advertising World, Columbus, Ohio.
The Advisor, New York.
The Ad-Writer, St. Louis, Mo.
Agricultural Advertising, Chicago, Ill.
The Billboard, Cincinnati, Ohio.
The Billposter-Display Advertising, New York.
Boyce's Hustler, Chicago, Ill.
Brains, New York.
Class Advertising, New York.
Charles Austin Bates' Criticisms, New York.
Fame, New York.
General Information, Binghamton, N. Y.
Harman's Journal of Window Dressing, Chicago, Ill.
Ideas, New Haven, Conn.
The Imp, Lincoln, Neb.
Indentors' Guide, Bombay, India.
The Mail Order Journal, Chicago, Ill.
Mail Orders, New York.
The Middleman, Chicago, Ill.
The National Advertiser, New York.
Our Silent Partner, Waterville, Maine.
Plain Talk, Chicago, Ill.
Press and Printer, Boston, Mass.
Printers' Ink, New York.
Printers' Ink Supplement, London.
Profitable Advertising, Boston, Mass.
Publicity, Hull, England.
The Reporter, Chicago, Ill.
The Rhode Island Advertiser, Providence, R. I.
The Show Window, Chicago, Ill.
Up-to-Date Distributor, Cleveland, Ohio.
The Western Advertiser, Omaha, Neb.

Besides these strictly trade journals, a considerable number of papers, especially commercial papers, conduct departments devoted to the subject, and occasionally a daily paper prints a series of articles written by an expert for the benefit of its advertisers.

The great extent to which the principle of the division of labor has been carried is one of the marked features of the advertising of the present day. The whole process has been minutely subdivided, so that each part of it, from the planning of the campaign to the placing of the advertisement in the hands of or before the eyes of the public, is performed

by a specialist. Following the development of these special organs we look to see them combined so that they will work together most economically. This stage has already been entered upon. It is a part of the general movement towards organization which is taking place in the social and political as well as in the economic world.

Large advertisers are combined in special and general associations. An example of the former is the "Proprietary Association of America," an organization of the patent and proprietary medicine makers. It has been in existence seventeen years, and has five hundred and fifty members. The "Sphinx Club" of New York is an organization of men in the advertising business or any of its allied interests,—agents or advertisers. Its purpose is general discussion of the problems of practical advertising. The "Association of American Advertisers" is a general organization, formed in New York in December, 1899. It consists of one representative and his alternate from any reputable house.

ADVERTISING IN FOREIGN COUNTRIES.

The character of Canadian advertising is influenced by the presence of the French element, and by English traditions and usages; but, on the whole, it is very much like that of the United States. The classes of goods advertised, the variety of mediums used and the relative importance of each, and the general style of the advertisements — language, display, illustration — are much the same as on this side of the line and tend to become still more so.

England was the pioneer in modern advertising. Some phases, as that of outdoor advertising, she passed through thirty years ahead of us; in others, such as newspaper display and illustration, she is far behind. In the amount of advertising *per capita* she ranks very nearly if not quite up with the United States. Outdoor signs, posters, etc., are used to an extent not yet reached here, and it is to be hoped

never will be reached. Cities, railway stations, and waysides are plastered with signs. Magazine advertising is a small affair compared with ours. Much of it is done by means of "insets"— loose sheets or folders placed between the leaves. Many of the British weeklies have huge circulations, and are well patronized by the advertisers. The dailies carry an immense amount of matter, but have not until recently admitted display type or cuts. Much less art is used in the presentation of the advertisement than with us. The bright, incisive, clean-cut style of our commercial paragraphers is wanting. Instead the Englishman says "use so and so," "wear so and so," "eat so and so," "they are the best"; and that exhausts his descriptive and persuasive powers.

French newspapers contain fewer advertisements than those of Germany, England, or the United States. The papers are very poorly printed on cheap paper and charge high rates. The *Petit Journal*, with a circulation of over a million a day, is the most famous: its rates are from four to six dollars a line. Cuts and display type are very poor. There are two important advertising agencies in Paris, one of which has exclusive contracts with a large number of newspapers and works in their interest, rather than in that of the advertiser.[1] The interiors of the omnibusses are used for placards much as our street cars are, and the interior walls of the omnibus stations are covered with posters. Advertising cabs, the sides of which are covered with posters, carry passengers in Paris for half fare. The railway stations are utilized for advertising, both inside and out, and along the lines leading from the cities are many billboards, as in England and America. France is the home of the poster. Billboards are numerous along the streets and boulevards, covered with striking posters done in brilliant colors, many of them of very high artistic merit.

According to all testimony advertising in Germany is much behind that in the United States.[2] Less energy and expense

[1] T. B. Russell, in *Printers' Ink*, December 14, 1898.

[2] *Consular Reports*, June, 1898, p. 251. Also, Fowler's *Publicity*, p. 136.

are put into it, and there are not so many large firms covering the whole country; more than that, the buying public is much smaller and has less money to spend. A German firm which advertises in both countries says that the so-called "great" style of Americans would not succeed in Germany.[1] In Leipsic, a typical city, the retail stores depend largely upon window display, many of the windows extending down to the basement floor for this purpose. Uniformity of price is noticeable, even after Christmas. There is no attempt at "wonderful bargains" or "cut prices." The principal street advertising is by small posters on large circular columns twelve feet high and four feet in diameter placed at intervals through the city in conspicuous positions. Newspaper advertising is the most important. It occupies about half the space in the dailies. In a paper taken at random thirty-six out of sixty-four columns were filled with advertisements. The matter is very compact. The street cars contain but few placards and they are on the ceiling. In the theatres permanent signs are placed above the stage setting. Opera and theatre programs are posted on the cylinders in type not much larger than ordinary newspaper type.[2] Exaggerated or untruthful advertisements are liable to punishment by law in Germany, and judges are not slow in applying the law. Sales because of "stock-taking," "removal," and "retiring from business," must be genuine or they lead to a fine.[3]

Advertising in the British colonies is much like that of England itself in character, but is scanty in its amount. The newspapers are poor in appearance and exclude cuts and display type even more strictly than the English papers do. A correspondent states that advertising in South Africa is small in quantity and poor in quality. The railway stations are used for enamel plates, painted boards, and occasional posters. There are no field signboards because few people

[1] Fowler's *Publicity*, p. 163.
[2] *Consular Reports*, June, 1898, p. 251.
[3] *Ibid.*

travel. Billposting is done in the large towns. In the country there is very little advertising, even in the newspapers. Our correspondent states that those who wish to introduce a new article among the Dutch farmers bribe the "predicant," and the thing is mentioned in next Sunday's sermon!

Japan is taking on the usages of civilization in this respect as it is in every other. In eighteen years 575 daily and weekly newspapers have been established, besides many class papers.[1]

ADVERTISING EXPENDITURE.

In describing the mediums and subjects of advertising we have given figures in many instances. We will now group together some of these for comparison, adding new ones also. The total advertising expenditure of the business countries of the world is estimated by Fowler to be over $2,000,000,000 annually.[2] He does not explain how he arrives at this estimate, but presumably it is by taking the United States as a basis, and reckoning the probable relative amount in other countries. Estimates for the United States vary from $200,000,000[3] to $500,000,000.[4] The difference is partly accounted for by the lapse of time between the smaller and the larger estimate. Five years, and especially that five years, shows a vast increase in the amount of advertising in this country. But, as will be seen later, even this estimate does not take all the mediums into account.

For newspapers and periodicals Harris's estimate in 1893 was $100,000,000. In 1897 Herzberg figured it at $200,000,000;[5] and in August, 1899, *Printers' Ink* made it between $200,000,000 and $300,000,000.

In billposting and other outdoor advertising Mr. R. J. Gunning places the expenditure for 1898 at $50,000,000, of

[1] *Printers' Ink*, May 10, 1899.
[2] *Publicity*, p. 552.
[3] E. P. Harris, *Social Economist*, March, 1893.
[4] *Art in Advertising*, September, 1898.
[5] *Lippincott's Magazine*, July, 1897.

which half a million was in Chicago.[1] In England the annual wages of billposter employees are reported by *Publicity*,[2] an advertising journal published at Hull, as amounting to $7,500,000. Wages constitute perhaps one-half the total cost.

There are 750,000 store fronts in the United States fitted with plate glass windows to allow of the display of goods.[3] One hundred dollars a year would seem to be a fair average of the cost per window, counting interest on the first cost, rental value of the floor space taken, loss on goods used for display, apparatus used, and value of time spent by proprietor, clerks, or professional window trimmer. This would give a total of $75,000,000 a year for windows alone, to say nothing of display arrangements within the store.

Mr. George Kissam estimates the annual expenditure for street car advertising at $2,000,000, and this is concurred in by other authorities.[4] For occasional literature and miscellaneous mediums no authoritative estimates or data are in our possession.

Under the head of personal mediums the cost of commercial travelers is the main item. The president of the commercial travelers' national league says that there are, or were until recently, 350,000 of the craft in the United States.[5] Taking the average annual cost or a commercial traveler as $2000 this gives a total of $700,000,000. As the traveler performs two functions — advertising and selling — one-half of this immense sum may be charged to each. Evidently it does not enter into the computations of total expenditure given above. Were it included it would increase the largest figures by three-fourths.

But it is relative and not absolute amounts which are most instructive and most important. What ratio does advertis-

[1] *Printers' Ink*, July 19, 1899.
[2] *Publicity*, August–September, 1899.
[3] *Brains*, October 21, 1899.
[4] *Printers' Ink*, August 24, 1898.
[5] Before the Industrial Commission, June 16, 1899.

ing expenditure bear to the value of goods sold? To this question there is no reliable answer. But, taking the value of goods sold in the United States in 1890 at $10,000,000,000, and the total expenditure for advertising them at $500,000,000, we get a rate of five per cent. This is not an overestimate.

We will now give a number of individual cases where the ratio is known. A western flour miller spent about $18,000 in advertising a total output of goods which sold for $2,700,000, making a rate of two-thirds of one per cent.[1] A Chicago mail order house spends half a million a year in advertising and sells $15,000,000 worth of goods,— a rate of three and one-third per cent.[2] The case of the Monarch bicycle has already been cited. Its expenditure was from four to five per cent of its sales. The *Dry Goods Economist*[3] says that "two and a half per cent is regarded by many merchants as the ideal advertising appropriation, while others who base their success upon most extensive advertising do not consider five per cent too much." Mr. Charles F. Jones, who has every facility for making a fair estimate, thinks that the advertising of the twenty large New York department stores averages about four per cent. Their sales are about $50,000,000 a year, and their advertising expenditure about $2,000,000.[4] A western flour and feed mill firm figures that each inquiry in response to their advertisement costs eighty-seven cents,[5] and there is only one sale out of twenty inquiries, on the average. This makes the advertising on each mill cost $17.40, and as the mill sells for from one hundred to two hundred dollars the rate varies from eight and a half to seventeen per cent. A certain cereal food sells for ten cents a package, or $3.60 for a case of thirty-six packages. About one dollar of this is due to the cost of advertising it,

[1] *Printers' Ink*, January 4, 1899.
[2] *Ibid.*, December 14, 1898.
[3] Cited in *Printers' Ink*, May 10, 1899.
[4] *Ibid.*, January 25, 1899.
[5] *Ibid.*, June 14, 1899.

or twenty-eight per cent.[1] A well-known proprietary article was advertised to the extent of $429,000 in 1893, and its sale amounted about $1,500,000, giving a rate of over twenty-eight per cent.[2] Another medicine firm spent $250,000 in 1898 to sell $1,500,000 worth of medicine, or over sixteen per cent.[3] One firm spends five per cent on some articles and twenty-five on others. Another medicine firm says that on some articles from thirty to forty per cent of gross sales is expended.[4] Cahill's "Advertising"[5] says that in many businesses it has paid to spend in advertising two-thirds of the capital invested; and A. T. Stewart said that he who had invested one dollar in a business should invest a dollar in advertising that business.[6]

That some firms can afford to spend almost any percentage necessary will appear from the following facts: In 1895 the Michigan food commissioner showed that one article which sold for fifteen cents cost one-third of a cent to make.[7] A certain household article which retails for ten cents costs the dealer less than two cents.[8] Some proprietary medicines very extensively advertised and used sell for seventy-five cents and one dollar and cost from four to six cents to manufacture.[9]

We cannot show statistically what percentage advertising forms of the value of the goods when they reach the hands of the consumer. The estimate of five per cent given above is thrown out only as an estimate. It was made quite independently of the figures given for individual advertisers. Four per cent seems to be a common rate among retailers,

[1] Charles L. Coleman, *Printers' Ink*, September 25, 1898.
[2] W. J. Lampton, in *Fame*, cited by *Printers' Ink*, November 29, 1899.
[3] John C. Graham, in *Printers' Ink*, February 15, 1898.
[4] Fowler, p. 126.
[5] Page 8.
[6] *Ibid.*
[7] *Vermontville* (Mich.) *Echo*, February 26, 1896.
[8] *Printers' Ink*, March 15, 1899.
[9] *Bulletin of Pharmacy*, quoted in *Advertising for Druggists*, June, 1899.

but it must be remembered that many of their goods have been advertised one or more times before, and that the advertising done by commercial travelers all comes before the retailer gets the goods. As for the general advertisers, they spend varying percentages, all the way up to one-half their gross income, and occasionally even more.

The question now arises, "What part of this expenditure is an economic waste?" A considerable portion of it, surely. In the first place, much of that advertising which merely results in drawing trade to one seller at the expense of others must be put down as sheer waste. A case in point is the enormous advertising of coffee by the Arbuckles and the Woolson Spice Company in their rivalry. If the consumption of coffee is somewhat stimulated thereby, it is at the expense of tea or some other beverage. Coffee is already universally known and used: the public does not need educating on the subject. Another case is that of soap. In the summer of 1899, when the attempt was being made to form a soap trust, the promoters stated that $30,000,000 was annually thrown away in advertising soap. This was probably an exaggeration, but we have the statement of a conservative manufacturer that he would not consider a half of that sum too large an estimate of the waste.

The advertising springing from the rivalry of two or more retail stores in the same locality is another example. For the information of the public one advertisement would be as good as three or four. The rest are simply wasted. The labor of the great army of commercial travelers is in large part without economic value to society. A fraction of their present numbers would do the work they all now do, both in making known the existence and qualities of goods and in effecting sales. In this one point alone there is probably a waste of at least a hundred million dollars annually. Again, there is the advertising of many patent medicines, which

operates chiefly to make people fancy that they need medicine. It simply plays upon the ignorance and credulity of the public. Were it to drop off altogether the economic condition of society would be improved by just the amount now spent upon it. Moreover, a considerable portion of what may, under existing canditions, be called legitimate and necessary advertising fails to reach the mark. A large general advertiser said that he made one mistake in advertising in 1898–99 which cost him $50,000.[1] Assuming for the moment that the use of his goods would have resulted in a gain to society, some $50,000 spent by him had failed to induce people to buy those goods. It was lost to him and to society. None but those in the business realize how much is annually wasted in this way. One large advertiser says that is seventy-five per cent of the whole expenditure; another authority says it is ninety per cent.[2]

Further illustrations might be given but are perhaps unnecessary. Let it be understood that advertising has a legitimate function, namely, to make known the qualities of goods and the conditions upon which they may be had, as a preliminary and necessary condition of their being distributed among the people. But when it is used to introduce or increase the sale of an injurious or worthless article; when it influences the public to an undue expenditure upon a good article; when its volume goes beyond what is necessary to inform the public; and when it serves merely to divert existing demand into particular private channels — in all these cases, and they constitute a large part of the total, advertising is an economic waste. Can this waste be prevented? Some light is thrown upon the question by the great industrial combinations.

The two combinations which have longest been prominent — the Standard Oil Company and the American Sugar

[1] *Profitable Advertising*, December, 1899, p. 477.
[2] Fowler, p. 196.

Refining Company — have done practically no advertising. The latter has, however, recently taken it up as a result of the competition of independent refineries, and the former for the purpose of pushing certain of its by-products. Many of those lately formed have cut very deeply into one form of advertising — that of commercial travelers. The president of their national league testified before the Industrial Commission on June 16, 1899, that the trusts had up to that time discharged 35,000 men, and reduced the salaries of 25,000 more, entailing upon them a loss of $60,000,000 a year, which was saved to to the trusts, as was also $21,000,000 railroad fare and $27,000,000 in hotel bills. He stated that there had been discharged by the tobacco combines 3000 men; by the bicycle combine 600 men; chair, 500; rubber, 300; sugar and coffee, 1000; steel rod, 300; baking powder, all but six; tin plate, nine out of every ten. Whether these figures prove to be accurate or not, economy in this form of advertising is one of the main motives and first steps of the combinations. The saving is an immense one.

Are the trusts able to make similar savings in other forms of advertising? The best opinion seems to be that, while a considerable saving can be made, it will not be as large as in the case of commercial travelers. In the first place their monopoly is not absolute. In many cases independent producers still compete with them, and in order to keep their share of the trade they must continue advertising. In other cases competition, although not actual, is at hand as a possibility whenever an opening presents itself. The trust must cover the field continuously in order to prevent such an opening. Moreover, even if the trust had a complete and safe monopoly it would generally be to its advantage to continue, and often to increase its advertising expenditure.

The truth is that human wants are elastic. They quickly expand under the right conditions and contract when pres-

sure is exerted upon them. In this fact lie our hope of progress and our safety in times of depression. None are so keenly alive to the fact as the general advertisers. Many are the instances in which the demand for new goods or for a particular brand of old goods has been built up from nothing by continuous advertising. The advertiser cultivates wants.

It is safe to say that in the case of most goods now generally advertised, and of most houses which advertise either locally or generally, the sales would fall off to a ruinous extent were the advertising withdrawn. Now while it is true that some trusts have withdrawn a part of their advertising, those businesses which have been built up on it must continue. The baking powder trust, for example, cannot discontinue the advertising of the "Royal" or "Cleveland" brands. Were they to do so the independent companies would seize the opportunity to push forward their products. Furthermore, the trust being capitalized on the combined capital of all the companies forming it, at the least, and this value depending in each case on the advertising which had built it up, it is evident that that advertising must continue if the revenue from the sale of the several brands is to continue. Of course it may be a part of the purpose of the trust to drop the brands of the smaller component companies and substitute the two or three better known ones for them. In this case they can be only partly successful, for the independent companies are at hand again.

The only mediums besides the commercial travelers to feel severely the effects of the withdrawal of advertising by the trusts have been the trade papers. The Chicago *Tribune* is authority for the statement that the failure of three or four of them is directly traceable to the formation of trusts in their industries, and the consequent cessation of advertising by the smaller concerns swallowed up.

The department stores throw some light on this question, for they are similar in their nature to trusts. They find it necessary to advertise against actual and possible competition, and they find it profitable also. Their advertising stimulates buying. It draws crowds in every city. It is the most striking feature of the daily papers, and its volume is undoubtedly much greater than that of the hundreds of little stores would have been, had they remained independent. On the whole, therefore, it does not seem probable that advertising will be much if at all reduced as a result of the trust movement.

Fuller treatment of the economic side of our subject aud the discussion of its psychology, its esthetic and its ethical aspects, are not permitted by the limits of this article, and are reserved for other papers.

BIBLIOGRAPHY.

BOOKS.

History of Advertising. By Henry Sampson. London, 1873.

The History of Signboards. By Jacob Larwood and John C. Hotten. London, 1866.

Publicity: an Encyclopedia of Advertising. By N. C. Fowler, Jr. New York, 1897.

Publicity. By an adept of thirty years' experience. London, 1878.

Quaint and Curious Advertisements. By Henry M. Brooks. Boston, 1886.

For books bearing upon special phases of advertising see footnotes.

ARTICLES IN MAGAZINES.

Advance of Advertising. *Cornhill*, vol. 72 : 505.

Advertisements. By A. Wynter. *Quarterly Review*, vol. 97 : 195.

Advertisements of the 18th Century. *Leisure Hour*, vol. 31 : 408.

Advertisers and Advertisements. *All the Year Round*, vol. 41 : 34.

Advertisements and their Disappointment. *Temple Bar*, vol. 11 : 551.

Advertising. By G. Wakeman. *Galaxy*, vol. 3 : 202.

Advertising Age of Veneer. *Fraser*, vol. 45 : 87.

Advertising as an Art. *Chambers' Journal*, vol. 2 : 401.

Advertisi ng as a Trespass on the Public. By Richardson Evans. *19th Century*, vol. 37 : 968.

Advertising Duties. *Littell's Living Age*, vol. 31 : 27.
Advertising and Art. By G. P. Lathrop. *Nation*, vol. 20 : 342.
Advertising for a Wife. *Colburn*, vol. 82 : 289 and 442.
Advertising in China. *Cornhill*, vol. 64 : 25.
Advertising in New York. (1874.) *All the Year Round*, vol. 32 : 425.
Advertising in Scotland. *Tait* (n. s.), vol. 3 : 190.
The Advertising Nuisance. By W. E. H. Lecky and others. *New Review*, vol. 9 : 466.
Advertising Literature of the Age. *Colburn*, vol. 67 : 111.
Advertising of the "Times." *Chambers'*, vol. 3 : 199.
The Advertising Page. *Overland* (n. s.), vol. 22 : 569.
Advertising, the Grand Farce. *Fraser*, vol. 79 : 380.
Advertising Traps. (1859.) By Charles Dickens. *All the Year Round*, vol. 1 : 5, 251.
Advertising System. *Edinburgh Review*, vol. 77 : 1.
Among the Advertisements. *All the Year Round*, vol. 34 : 485.
Among the Advertisements. *Chambers'*, vol. 61 : 84.
Architecture and Advertisements. By Richardson Evans. *Journal of the Society of Arts*, vol 42 : 35.
Art in Advertising. *Art Journal*, vol. 59 : 49.
Artistic Advertising. *Magazine of Art*, vol. 12 : 421.
Art of Advertising. *Every Saturday*, vol. 5 : 732.
The Art of Puffing. *Dublin Review*, vol. 27 : 146.
The Art of Successful Advertising. *Engineering Magazine*, vol. 6 : 229.
The Arts of Advertising. *Leisure Hour*, vol. 15 : 635.
Curious Advertisements. *Chambers' Journal*, vol. 56 : 678 ; and 59 : 399.
Curiosities of Advertising. *Chambers'*, vol. 72 : 311.
Curiosities of Advertising. By W. H. Rideing. *Scribner's*, vol. 20 : 601.
Curiosities of Advertising. *Leisure Hour*, vol. 10 : 797.
Deceptive Advertisements. *Chambers'*, vol. 54 : 70.
Drolleries in Advertising. " vol. 55 : 551.
Early Newspaper Advertising. " vol. 9 : 158.
Economics of Advertising. By E. P. Harris. *Social Economist*, vol. 4 : 171.
Evolution of Newspaper Advertising. *Lippincott's*, vol. 60 : 107.
Financial Advertising. By J. B Hodgskin. *The Nation*, vol. 9 : 186.
German Advertisements. *Chambers'*, vol. 48 : 219.
Hints to Advertisers. " vol. 36 : 161.
Modern Advertisements. *Dublin University Magazine*, vol. 49 : 456.
Modern Advertisements. *Victoria*, vol. 6 : 313.
Newspaper Advertising. By J. J. Belcher. *Harper's*, vol. 33 : 781.
Only the Advertisements. By E Stuart. *Temple Bar*, vol. 106 : 221.
Philosophy of Advertising. *Once a Week*, vol. 9 : 163.
Picture Advertising in South America. *Household Words*, vol. 4 : 494.
A Plea for Truth in Advertising. *Fraser*, vol. 62 : 108.

Puffing. *London Magazine*, vol. 1 : 657.
The Puffing Element in American Literature. By E. I. Sears. *National Quarterly Review*, vol. 26 : 42.
Puffing in our Higher Education. By E. I. Sears. *National Quarterly Review*, vol. 31 : 281
The Puffing System. By T. B. Macaulay. *Edinburgh Review*, vol. 51 : 193.
Queer Advertisements. *Chambers'*, vol. 43 : 210; and 44 : 488.
Sensational Advertising. *Leisure Hour*, vol. 11 : 102.
Some Odd Advertisements. *Chambers'*, vol. 64 : 91.
Some Old Advertisements. " vol. 43 : 506.
Thoughts on Puffing. *All the Year Round*, vol. 25 : 329.

THE PRACTICAL USE OF VITAL STATISTICS.[1]

By Frederick L. Hoffman.

Vital statistics, in the words of Dr. Newsholme, "is the science of numbers applied to the life history of communities and nations," and this definition being accepted, we are on the outset confronted by a matter of general importance, since there are none of the people of this State so high or so low but that to them life has its value in direct proportion to its duration. Time was when mankind believed that those "whom the gods love die young," but this doctrine of fatalism no longer prevails in the light of modern medicine and sanitary science, for both of these efforts for social betterment and the amelioration of the conditions under which the people have to live could not exist but for the modern science of vital statistics, than which there is no field of research more promising of useful and practical results.

It has been necessary for me to confine myself in this discussion to mortality statistics, since even a superficial consideration of the other branches of the science, dealing with the statistics of marriages, divorces, and births, would consume more time than I have at my command. But, manifestly, the mortality statistics must needs be looked upon as the most important branch of the science, since they affect more directly the interests and the welfare of the living people of this State. Although I readily recognize the great social value of the statistics of marriages, divorces, and births, I personally have had but little opportunity to investigate these subjects.

My discussion as to the data of human mortality will be largely confined to the conditions as they exist in the State of New Jersey, and as they are made plain to us by the facts already in our possession through the efforts of the State Board of Health since 1878. Data of some historic value have been collected for previous years, but as regards the State as a whole, we have no information of scientific value for years previous to 1878. For some of the counties, especially for Essex, we have information of value for years as far back as 1859, in a report on the "Health and Morality of Newark, N. J.,"

[1] Read before the New Jersey Sanitary Association.

by Dr. Edgar Holden, for the period 1859–1878. Another valuable paper on the "Climatology and Diseases of Essex County" is to be found in the *Transactions of the Medical Society of New Jersey* for the year 1887, in which also the vital statistics for years previous to 1878 are incorporated in considerable detail. Since 1878 and to June 30, 1899, there have been recorded in this State 550,955 deaths, and of these records and their practical value it is my intention to speak to you this evening.

The essential facts known to us as to this large number of deaths are: (1) The year of occurrence; (2) the ages of those dying, by certain specified groups of years; (3) the sex; (4) the causes, arranged according to reasonably well defined groups of diseases; (5) the locality, with a reasonable degree of precision. More details would, of course, be desirable, more accuracy would be of great value, but on the whole, as the information has been made public, it is of practical value to the State, to the medical profession, and to the public at large. The information available is sufficient to approximately indicate the rise or fall of the general death rate and the corresponding increase or decrease in the longevity of the people of this State. The information is not as useful as it could easily have been made had those in charge of the registration and publication of these statistics been more liberally supported by the State in their arduous efforts; but even in their present condition they are a valuable means of indicating to us the steady progress which has been made in this State during the past twenty years. It is but proper that mention should be made of one to whom we are largely indebted for the good work which has been done during a large part of this period, namely, Dr. Ezra Hunt, formerly the Secretary of the State Board of Health.

Our information as to the mortality in this State is supplemented by the census reports made for the past fifty years on the mortality of the United States, but in particular by the life tables of New Jersey, which have been incorporated in the census reports of 1880 and of 1890.

A careful study of this available body of information, really the vital history of the people of this State, is indeed not only a most interesting subject, but one of great promise of practical results. The first fact which is impressed upon us by a study of the life tables

of the two census years mentioned would indicate that the sanitary progress, of which we hear so much, has not affected as large a proportion of our population as is commonly supposed to have been the case. Unquestionably, immense progress has been made and almost wonderful results have been accomplished in the direction of diminishing the mortality of children under the age of fifteen years. As an illustration I may mention the fact that if we take the three years, 1879–1881, and compare them with the last three years, 1897–1899, we have only 24,208 deaths under twenty years of age in the latter period against 28,880 deaths under twenty years during the earlier period of our history, although during the same years the population has almost doubled itself. But this gain in longevity at earlier ages has not been made at the ages past middle life, and we have a pertinent illustration in support of this theory in the two life tables for New Jersey, published in 1880 and 1890, showing that while in 1880 the expectancy of life at the age of twenty-five was thirty-nine and eight-tenths years; in 1890 it was only thirty-seven and four-tenths years; that while in 1880 at the age of fifty the expectancy was twenty-two and three-tenths years; in 1890 the expectancy was only twenty-one years. In other words, the mortality at older ages is today higher than it was twenty, or even ten, years ago. I cannot burden this paper with statistics on the subject, but I hope to add a series of tables in an appendix to this paper when the same is finally published in the *Transactions* of the Association.

At present it is impossible to point out definitely and precisely the causes responsible for the unquestionable increase in the mortality at ages above twenty. We have not for this State the detailed information as to the causes of death which would be necessary for a thorough and complete study of the subject. I understand that these imperfections will be largely done away with in the future reports under the new law, according to which the Bertillon system of classification will be adopted, and I sincerely trust that together with this improvement in disease classification there will come a corresponding improvement in the collection of more detailed information as to the ages at death. To make our vital statistics of more practical value, the ages at death, together with the corresponding causes, must be given for single years under the age of five and for five-year periods over the age of five. It is only in this manner that we

can arrive at a definite conclusion as to the age incidence of disease and the causes which are responsible for the present excessive mortality at ages over twenty. But what is most needed in addition to a more complete registration of causes and ages is detailed information as to the occupations at death. At present we have absolutely no knowledge as to the relation of disease occurrence in different occupations, and it is in this direction that the greatest practical value of vital statistics finds its logical explanation.

As the result of frequent and comprehensive investigations, I am satisfied that there is no subject deserving of more thorough investigation and study on the part of our physicians and those in charge of the sanitary interests of our different towns and cities than the intimate relation which unquestionably exists between occupation and mortality. There are in this State trade centres where industries of a special order are carried on on a very large scale, and as such we may mention the pottery and rubber industries in Trenton, the glass industry in southern New Jersey, the hat industry in Orange and Newark, and the silk industry in Paterson; yet, as far as our information goes, we know nothing of determining value as to whether these industries are responsible for the increased mortality at ages over twenty of which I have spoken. It is true, and we may speak of this with pride, that special investigations have been made by disinterested students of the subject, and that reports of great value have been published in the annuals of the State Board of Health and of the State Bureau of Labor Statistics. No reports of any other State boards of health contain such precise and satisfactory information as to the diseases of workingmen employed in the principal industries of the Commonwealth. Commencing with 1878, we have in the reports of the State Board of Health a series of valuable papers on the diseases of hatters, of potters, of glass workers, of rubber workers, etc. Commencing with 1889, and terminating with 1895, we have in the annual reports of the State Bureau of Labor Statistics exceedingly valuable and suggestive inquiries into the trade life of workingmen, not only in the principal manufacturing industries, but also in other dangerous and unhealthy occupations. Very little in this direction has, however, been done for the past ten years, and it is my plea to you at this meeting that our special efforts in this direction should not be relaxed, or that we should be satisfied with

what has been done in the past, but that we should enlarge our scope of inquiry, supplement our limited body of observed facts with a large body of statistics collected by the State Board of Health as to the diseases of workingmen employed in the useful and productive trades and industries of this State.

Valuable as the investigations of the State Board of Health and of the State Bureau of Labor are to those who are most interested in the subject, they fall short in that they have not the support of a large series of observed facts to be found in the death certificates of those whose lives have terminated in this State during the past twenty years. I would urgently recommend that for practical use in our vital statistics we should have in the future a detailed and comprehensive table, showing for all of the principal occupations or industries the causes of death according to age periods. That this task is not impossible, or even very difficult, is illustrated in the excellent reports of the health officers of Sheffield and Blackburn, England. These reports can well serve as a model for our own State Board, should it appear to be possible and feasible to undertake the construction of occupation mortality tables. I am fully aware of the inherent difficulties which accompany such inquiries; I fully realize the difficulty of obtaining exact information as to the occupation at death, but it is not for us to be discouraged by such difficulties, but for us who are really and vitally interested in the collection and publication of such statistics to solve the difficulty, and that this difficulty can be solved all of us know who are familiar with the excellent and useful reports published under the direction of the Registrar-General of England every ten years. In certain directions an improvement of our present statistics is easily possible. There should first be added to the death certificate a second question as to occupation, stating the industry or trade in which decedent was engaged at the time of his or her death. To explain to you the meaning of this point, I will say that at present a death certificate may contain a statement of the occupation of decedent at the time of his death as that of a moulder, but unless it is stated that he was a moulder in a pottery, he would be classified among iron moulders or stove moulders, as the case might be. Similar cases could be mentioned, as, for instance, engineers, where we have no information as to whether decedent was a stationary engineer, employed on a railway, or possi-

bly a civil engineer; but if the second line is added referring to our first illustration, it would have been stated that the decedent was a moulder in pottery, and his death in that case would have been accurately classified. I would, therefore, suggest that the State Board should adopt a new death certificate, in which the first line referring to the occupation would merely ask the question as to "occupation at death"; the second line would ask the question, "industry or trade at death"; and by an answer to these two questions we would obtain the accurate and necessary information demanded for the best interests of the working people of this State. A third question could be added which would materially increase the value of these statistics, which, however, is not of quite so much importance as the second question which I would like to have added to our present certificate. It would be desirable to have a definite statement as to whether decedent at the time of his death was an employer or an employee. Manifestly, it is a very different matter whether decedent was the owner of a pottery or a working potter at the bench. If we could obtain this information we would very materially enhance the practical value of the vital statistics of this State.

But a further decided and material improvement in this direction is possible through a co-operation between the Bureau of Labor Statistics and the Bureau of Factory Inspection. The reports of the latter are at present of practically no value for the study or solution of questions pertaining to the trade life and disease or accident liability of men employed in the unhealthy or dangerous industries of this State. I can conceive of no practical reason why so large an amount of routine information should be published which can serve no useful purpose except (and the reports are practically limited to this information) that of record, and why the energy and effort expended in this direction should not serve the more useful purpose of placing before the people of this State information of value as to the real sanitary condition of factories and the health factors affecting our working people in the same manner as this has been done for so many years in the reports of the Board of Factory Inspectors of Great Britain. Many of the reports of the factory inspectors of different States are in this respect of far greater value than the reports published by our own Board of Factory Inspectors, and I believe that if the subject were thoroughly investigated by a commit-

tee of the legislature, or by disinterested citizens of this State, there would be inaugurated an improvement which would make it possible for those who are interested in the subject to realize fully the present state of factory life in this Commonwealth. It would be possible on the basis of the statistics and supplementary information collected by the co-operation of the State Board of Health, the State Bureau of Labor Statistics, and of the State Board of Factory Inspectors, to produce a body of indisputable facts, on the basis of which it would be possible to frame more scientific rules and regulations by which our working people engaged in the most useful pursuits of life could be better protected than they are at the present time, and as they fully deserve to be.

These statistics of mortality by occupations, and the supplementary information as to the sanitary state of our factories, would have a secondary practical value to a large number of physicians, who in the light of published facts and on the ground of their own experience, verified and supplemented by such facts, would realize the almost boundless and at the present neglected opportunity for the study of diseases of working people employed in dangerous and unhealthy occupations for the purpose of developing special ability, which in time will give us a class of medical specialists of the diseases of workingmen, as we now have such specialists for diseases of the eye or ear, and for other parts of the body. Certainly no class of specialists is more urgently needed and none are likely to make more rapid progress in their own material welfare. The increase in general intelligence among our working people today, justly considered the most advanced industrial workers in the world, will soon create a distinct demand for more satisfactory and reliable advance on matters pertaining to illness and casualities directly the result of the industries in which our people are engaged. The advice of such specialists will be respected, and men will act thereon, and if necessary change their occupation, or change to another branch of their occupation less dangerous or injurious than the one in which they may be engaged, and in which they may have developed diseases in their incipient stages, not sufficiently advanced to be beyond improvement or complete recovery. Much has already been done in this direction by a few devoted and intelligent physicians, but most of all by such men as Dr. Arlidge, the English authority on diseases of men employed in

the potteries. There will come a time when we will coin a new term in medicine and speak of industrial medicine, just as we today speak of industrial chemistry, and both sciences or arts will indeed be most closely allied to each other.

I have limited myself to this one illustration of the value and utility of vital statistics, for unless we have more accurate information and a larger body of collected data as to the diseases of our working people, supported by accurate and extensive statistics as to the deaths in different occupations and the ages at which the deaths occurred, the development of industrial medicine will not be possible. What is true of the necessity of such statistics for the purpose of industrial medicine, is equally true of all other branches of medical inquiry into the longevity of our people as affected by other determining factors, such as surface geology, proximity to forest areas, of seashore and mountain climates, and many other factors which unquestionably have a direct influence upon the health of the people of this State. To enhance the practical value of the collected vital statistics would require in every locality a sincere and genuine interest in the local phenomena and the factors making for a long or a short life.

We, unfortunately, have developed, first, but little of this local spirit of inquiry, and, second, but little public appreciation and demand for published data as to the local health conditions. In curious contrast to the excellent work which has been done by the State Board of Health for so many years in publishing practical and useful information for the State as a whole, the local boards of health in New Jersey have published practically nothing of value, with the notable and recent exceptions of the cities of Asbury Park and Montclair. Some advance has also been made in the city of Newark, but none in proportion to the immense interests which are involved. For our other large cities, especially for Trenton, Camden, Jersey City, Paterson, and Orange, we have no health reports in such detail as are required for the best interests of the people of these cities. There is absolutely no reason why the cities of this State should not follow the example of other large cities in this country and publish annually a separate health report containing detailed information very much along the line as this has been done in so excellent a manner by the health officer of the city of Montclair, today perhaps the healthiest suburban city within fifty miles of the

city of New York. In few States in this Union is it possible to supplement such local reports by all the necessary information as to geology, climate, water supplies, and industrial statistics as is possible in New Jersey. No other State in the Union has so thoroughly equipped a geological survey in the hands of men who have given primary consideration to matters of immediate and practical importance, while at the same time not neglecting matters of remote importance. Our State Weather Service has published reports of a very high degree of usefulness, and as regards the State Bureau of Statistics, it has also contributed its share of information of value to the health officer in supplementing his conclusions as to the local conditions making for a long or short duration of life. It is much to be regretted that the reports of the State Bureau of Factory Inspection cannot be included in this praise of our State departments of supervision and investigation of subjects directly or indirectly affecting public welfare.

I cannot refrain on this occasion from calling your attention to a matter directly connected with the extension or development of the practical utility of vital statistics, and which but for urgent necessity I would gladly have left out of consideration, for in a measure it is to me a painful duty. You are all aware that in this State our vital statistics are in the first instance collected by the city clerks, and while there are certain reasons why this should be the case, in the light of the development of modern preventive medicine it is no longer desirable that this duty should fall to a class of men totally unfamiliar with the medical aspects of the data they are expected to register for the use of medical practitioners and sanitarians. This is not as it should be, and I urgently recommend that early steps be taken tending to a change in the law, and transferring this important duty from the city clerks to the local board of health or to a medical registrar of vital statistics, especially appointed for that purpose. In certain other States we have a still more antiquated system by which the Secretary of State is made the custodian of the vital statistics and under his supervision the statistics are compiled, published, and analyzed. This is contrary to the purpose of collecting vital statistics, since one totally unfamiliar with the essential requirements and needs of the science cannot be expected to do justice to the task imposed upon him. In consequence of this anomaly, vital statistics are in

many States collected without due skill and proper consideration of important details, while at the same time they are not in time placed before a trained medical observer for immediate consideration, verification, and correction. Gross errors must needs result from so antiquated and unwarranted a practice, which owes its origin to a time when certificates of marriage, birth and death served merely the legal purpose of establishing proofs of identity, but at the present time the legal aspect of these certificates is but subordinate to the far more important one of the State supervision of the public health, and hence the urgent necessity that the duty of collecting vital statistics in the first instance be transferred from the city clerk to the medical officer of health, or to a duly appointed medical registrar of vital statistics.

I cannot do better than illustrate the importance of this point by a reference to a slightly different matter, which at the same time will make clear to you the inexpediency of placing the collection, and, even worse, the analysis, of vital statistics in the hands of a State officer not directly connected with the sanitary administration or the preservation and improvement of the public health of the people of a State. Curiously enough, the illustration of which I shall make use is furnished by the State from which you would least expect so sorry an exhibition of ignorance and perversion, if not desecration, of a high public office, and at the same time of such utter indifference, if not contempt, of public requirements and public needs. In the State of Massachusetts vital statistics are also in the first instance collected under the authority of the Secretary of State, and it is by the authority of this same officer that the returns are annually published and analyzed by some one designated for this purpose. For forty-nine years, ending with 1890, this duty had been delegated to men trained in public health matters, to men thoroughly familiar with the science of vital statistics, to men deeply interested in the development of the highest degree of accuracy and skill, combined with a desire to make the vital records of the State attain to as high a degree of public utility as possible. During these forty-nine years, the science of vital statistics had been more highly developed in Massachusetts than in any other State of the Union, and the registration reports edited by the foremost men and authorities in the science of vital statistics had reached a point of public approval such as has never yet been

attained by any other State of this country. One would have expected where so high a degree of public utility had been reached, and where this important duty of study and analysis of the vital records had been developed to the complete satisfaction of the public, as expressed in the medical journals and other competent channels of public opinion, that it would have been impossible to ruthlessly destroy or to tear down the work of earnest men for half a century. Yet, without warning, without right, without justice, the Secretary of State in 1891 transferred this important duty away from the secretary of the State Board of Health to an unknown individual, who has since to the discredit of Massachusetts made the registration reports of that State not only a sorry evidence of his own ignorance, but an evidence of the indifference of the intelligent people of Maasachusetts to an act of iniquity on the part of a high officer of State, such as is, probably, without a parallel in the history of vital statistics in the civilized world. The registration reports of Massachusetts, as they have been issued since 1890, contain not hundreds but thousands of errors, the majority of which are inaccuracies and misstatements, which even a high-school graduate, trained in simple arithmetic, would not be expected to make. The reports are full of fallacies, full of discrepancies, and are today a discredit to the people of Massachusetts, and a discredit to the science of vital statistics, and a direct step backward in the development of the point to which I have called your attention, namely, the development and extension of the practical uses of the science of vital statistics.

I would not have spoken of this perversion of a high public duty, and of the undoing of the good work of able and earnest men for half a century, were it not that I believe it to be our duty to recognize dangers which confront us in this State as much as they are present in every other community. I believe that it is only by the strictest vigilance exercised on the part of the public and of individuals who have the best interest of the people at heart that so difficult a task as the one in which you are engaged can be carried successfully onward from year to year. The results which follow the efforts of sanitarians are alway remote, and more often benefit future generations than the people of the time who have to bear the immediate burden of expense. Hence this digression into a chapter of vital statistics, which to my mind records the most unfortunate and shameful betrayal of a public trust.

In conclusion, I may be permitted to touch once more, if ever so slightly, upon the value of vital statistics to the people of this State in other directions than the specific one of the inquiry into the diseases of the working people employed in the different industries recognized to be either unhealthy or dangerous, or both. We are in the last year of a century which marks a progress in sanitary science during fifty years such as has not been made during all the thousands of years of civilization which have preceded it. I believe it is not going too far to say that at no time in the world's history have the people been housed as well, have they been nourished as well, and have they in all respects lived as long and as well as the majority of our people do at the present time. But the problem which will confront us in the twentieth century more than in the nineteenth is the enormous growth of our large cities and the immense aggregation of millions of people upon a small area, such as we find to be the case in Greater New York, Greater Philadelphia, and even Greater Newark. The census returns for 1900, as far as they have been published, disclose a tendency of which I believe the people of this State should take early advantage, namely, the tendency of recent times on the part of the more intelligent people to leave the large cities and settle in the more healthy and more advantageous portions of the surrounding territory, where under semi-rural conditions they can enjoy a degree of happiness and health such as under the best conditions is not possible in the crowded centres of population. I believe that this tendency will become more confirmed, will become a more definite phase, during the next quarter of a century, and that it will prove of benefit to the people of this State, who from New York and Philadelphia will draw the best elements of the population as a new class of suburban residents in far greater numbers than has ever been the case before. But public intelligence has now reached a degee of development very considerably above that which prevailed a quarter of a century, or even a decade ago. Today, more than at any time in the past, do people inquire into the health factors of a community and the conditions making for a healthy and long life, and only in proportion as our cities and country sections hold out inducements in this direction, and make clear beyond a shadow of a doubt that our State is healthy and advantageous from this point of view, will we attract in the very near future the overflow of the intelligent and

desirable population of New York and Philadelphia, which will do much to aid us in the more rapid development of this State. I believe I am not going too far when I say that on the basis of my own investigation, and my own personal inspection of nearly every part of northern and southern New Jersey, I am warranted in the emphatic assertion that this State offers advantages for the health seeker and the home seeker such as cannot be found within a hundred miles of any other large city of this country. We have a State offering every variety of natural advantages, the seashore, the mountains, proximity to large forest areas, and even a lake country such as England itself has little more of beauty and attraction to boast of. You cannot extend the practical utility of vital statistics in a more beneficent direction than by giving strong encouragement to the local health officers of our cities and towns, and to all our physicians practising in the different sections of this State, in collecting and publishing the actual facts as they pertain to the longevity of the people of this State. Just in proportion as we thus demonstrate the practical value of vital statistics to the people at large, shall we gain for our State an increasing degree of public approval, which is so desirable and so fully deserved.

MISCELLANY AND NOTICES.

CLASSIFICATION OF CAUSES OF DEATH.

It may seem presumptuous to attempt a criticism of the Bertillon classification of deaths after the indorsement of that system by the American Public Health Association, and by the representatives of France, Austria, Italy, and many other European and South American states at the International Congress of Paris in 1900. Indeed, the necessity for a uniform schedule of the individual diseases and an accurate definition of the limits of each is so obvious that this part of the work must commend universal approval. Uniformity in the classification or grouping of these diseases is, however, not so indispensable; and, in this respect, Dr. Bertillon's scheme departs so widely from the systems at present in use in this country and in England, that there can scarcely be too thorough a discussion before undertaking it.

The systems of classification now used in English-speaking countries are modifications of the system proposed by William Farr in 1855. Dr. Bertillon stated to the International Commission last summer that this system was based on the seat of the maladies involved and not upon their nature, and claimed that his scheme was drawn on the same lines. It is difficult to see how this statement was allowed to go unchallenged. Dr. Farr's scheme, including under zymotic diseases the groups miasmatic, enthetic, dietetic and parasitic, and under constitutional diseases the diathetic, and tubercular groups, is a purely etiological one, and only of the local diseases, where the organ affected is necessarily considered, is Dr. Bertillon's statement correct.

The reasons for discarding the classification of diseases according to their nature appear to be two: that such classification is based upon theories of etiology which change with the progress of medical science, and that it leads to the use of group death rates which are misleading and valueless. The latter objection may be dismissed without argument; it will presumably be possible to discourage the use of group death rates by less radical means than confusing the returns so that they cannot be obtained. The former objection is un-

doubtedly a valid one; the only question is whether the progress of medical science is not certain to make alterations necessary in any system whatever. Apparently the International Commission considered that this was the case; as it expressly resolved, "*Qu' il est désirable que cette nomenclature soit revisée tous les dix ans.*"

Furthermore, it is among the individual diseases, exactly where comparability is most needed, that the most radical changes are likely to occur, and the modifications of the general classification must be insignificant in comparison. It is, of course, true that any system founded on a theory is imperfect and subject to change; but surely such a system is better than one founded on no rational theory whatever. A scientific classification, according to etiology, is a hard task, but I think a brief examination of Dr. Bertillon's tables will show that a scientific classification, according to the affected organ, is still more difficult.

The classes into which diseases are divided, according to the new system, are fourteen in number, as follows: general diseases, diseases of the nervous system and the sense organs, of the circulatory system, of the respiratory system, of the digestive system, of the genito-urinary tract and annexa, puerperal diseases, diseases of the integumentary system, diseases of the organs of locomotion, malformation, diseases of infancy, diseases of old age, external causes and causes ill-defined. In spite of this lengthy list the incongruous collocation of diseases is the first result which strikes one on an examination of the Bertillon tables. Thus we find typhoid fever, diabetes, and gout in the first group; tetanus, cretinism, and cataracts in the second; and penumonia, and polypi of the nasal cavity in the fourth.

With regard to tuberculosis and cancer the new system breaks down at once. Whereas each death is supposed to be classified according to the seat of the disease, all affections due to these causes are placed under the first great group of general diseases, which are defined as those which affect the entire organism, so that it is not possible or reasonable to refer them to any special part. Thus under this heading comes tuberculosis of the lungs as a general disease; pneumonia is classified as a disease of the respiratory apparatus. Cancer of the buccal cavity is a general disease; affections of the mouth form a sub-head under the diseases of the digestive tract. Dysentery and cholera nostras are general diseases; diarrhœa and

enteritis are diseases of the digestive tract. Anthrax is a general disease; carbuncle is a disease of the integumentary system. It is, perhaps, to be expected that cerebro-spinal menigitis should be classed as a disease of the nervous system; but to find peritonitis placed among the diseases of the digestive system, and puerperal septicæmia as a disease of puerperium, make one wonder just what a "general disease" may be. It is a relief to find tetanus a desease of the nervous system and not classified as an affection of the digestive tract on account of its effect on the organs of mastication.

Surely this scheme furnishes sufficient evidence of the impossibility of securing a rational classification of diseases according to the part of the body affected. The same disease may produce such a different effect with different individuals and at various periods in its course that such a system must entail endless confusion. Logically, it would require that a single case of typhoid fever be classed as a disease of the digestive tract and of the circulatory system and of the spleen at different periods in its course. Is there then no other refuge, as Dr. Bertillon implies, but the alphabetical arrangement of the causes of death? Such an alphabetical arrangement might, indeed, be preferable to a classification which does not classify. There is, however, another alternative,— the modification of the old etiological system to conform with present medical knowledge, making a system, subject to future change, indeed, but having a rational and scientific basis.

Just such a modification of the etiological system has been attempted by the registrar of vital statistics of the State of Rhode Island. In this scheme the general plan of Dr. Farr has been retained, with just such modification as will bring it into harmony with scientific facts. The titles of the five general classes,— zymotic, constitutional, local, developmental, and violent deaths,— are unchanged. Under the class, zymotic, the title of the first group is changed from miasmatic to communicable; the diseases included are much the same as in the old system with the exception of rheumatism, and with the addition of the whole of Farr's second group of enthetic diseases, syphilis, hydrophobia, glanders, and malignant pustule. The third, or dietic group, is retained for alcoholism, inanition, and purpura and scurvy; but the fourth, parasitic, group (thrush and worms) is combined with the communicable diseases.

The tubercular group under the second class of constitutional diseases is also transferred bodily to class zymotic, group communicable; thus the second class includes only the diathetic group, anæmia, cancer, and rheumatism. The changes under the last three classes, of local, developmental, and violent deaths are less sweeping. Pneumonia is transferred from diseases of the respiratory organs to the communicable group; peritonitis is dropped as being usually secondary; appendicitis, colitis, enterocolitis, dysentery, gastro-enteritis, and acute gastritis are introduced. A somewhat elaborate classification of the diseases of child-birth is given, and the group of diseases of nutrition is omitted. Finally, still-births, deaths from cause not stated, and from cause ill-defined are tabulated by themselves. This last group includes such indefinite terms as blood poisoning, coma, debility, heart failure, inflammation, septicæmia, shock, etc.

If we compare these two systems from a practical standpoint the second is surely to be preferred. Vital statistics are studied mainly with reference to the cause of disease. Any plan which groups them on an etiological basis must therefore be the most convenient one, for it enables the sanitarian, or the hygienist to see at a glance all those factors of the death rate which are subject to the same laws of causation, and which are amenable to the same preventive measures.

Theoretically, no classification can be natural or rational which is not based on descent or on affinity of cause. Every physician when he makes a diagnosis classifies the disease according to the cause, of which, or of the reaction of the organism against which, the symptoms are a manifestation. Dr. Bertillon recognized this law when he established his thirteenth class of diseases due to the external *causes;* but if he had been logical he would have omitted this group; and he would have classed death by freezing as a general disease, and dog-bites as integumentary diseases or circulatory diseases or diseases of the organs of locomotion, according to the depth of the wound. Any etiological scheme, like that of Rhode Island, will be imperfect; but it is capable of correction with the advance of medical knowledge. The defects of the Bertillon plan, on the other hand, are inherent in its false principle; and the inconsistencies noted above could be removed only by the introduction of others still more glaring.

C.-E. A. Winslow.

EMPLOYER'S LIABILITY.

The New York Bureau of Labor Statistics, in its seventeenth annual report, presents a large variety of statistics upon interesting topics, including over five hundred pages upon the "The Economic Condition of Organized Labor," showing the number of members of labor organizations, the amount of unemployment and of employment, the quarterly earnings, and the daily rates of wages.

The remainder of the book, amounting to over seven hundred pages, is devoted to a study of "The Compensation of Accidental Injuries to Workmen," which is by far, the most valuable presentation of the subject that has yet been made to American readers. It is introduced by a chapter upon "Accident and Accident Insurance in New York," the reports concerning accidents being returned by railway companies, factories, and mines, and statistics of various sorts being drawn from these returns. Statistics likewise of the amounts of accident insurance and the benefits, and also forms of the policies written are given.

This is followed by a chapter upon "Employers' Liability in England and America," in which the author considers the employers' liability at common law, and the development of this branch of law in both Great Britain and the United States. He also presents statutory modifications of the law as in Massachusetts and other commonwealths and proposed legislation in New York. Since the appearance of this book, Governor Odell has in his message recommended that some amendment to the law be made. In appendices to this chapter there are presented the English Employers' Liability Act of 1880, the Asquith Bill of 1893, which was passed by the Lower House and rejected by the House of Lords, and the English "Workmen's Compensation Act of 1897." The appendices also include statistics of accidents in Great Britain, and a complete collection of the Employers' Liability Laws of the United States and of the liability bills introduced in New York during 1900.

From the consideration of these laws in England and America the author passes to the consideration of similar laws in other countries. He first takes up the laws of Germany, which are reasonably familiar to American readers. He describes their operation and gives statistics concerning the same, with great fullness. He also makes a summary

of the results of the laws and adds three appendices, two being translations of the laws themselves and one, statistics of the insurance system.

When he leaves Germany he goes into a field which is unfamiliar to most American readers, and he takes up a class of legislation which has completely revolutionized the attitude of the law toward claims by workmen for compensation for injuries inflicted when they are at work. Because Austria was the first country in which laws of the strictly new type were enacted, he first presents an account of this legislation in that country. He also presents a translation of the accident laws, with all amendments and extensions thereof, and statistics of their operation.

In chapter five he continues by giving the laws of Norway, Finland, and Denmark, which are based upon the same principle as the Austrian law; and in chapter six he proceeds to give the laws of Italy, France, and Spain, which are likewise upon the same principle.

In chapter eight the laws in all other countries of Europe, and of New Zealand, are considered. In most of these countries, excepting the last mentioned, the laws are still of the old type.

It thus appears that in this one book is gathered together complete translations of the employers' liability laws of all the the important countries of the world, including the States of the United States, separately. It also contains statistics, showing their operation, a discussion of the principles upon which they are based, and synopsis of the arguments in favor of their adoption. The value of such a compilation can scarcely be exaggerated.

It is no part of the intention of the writer of this review to attempt to forestall the book itself in explaining to its readers the nature of these different laws; but it is impossible to refrain from saying that the new class of legislation, which has spread from Austria throughout practically all the countries of Europe in less than fourteen years involves a complete change of base in dealing with industrial accidents. One could stop at this point in explaining the matter, if it were not that the reader would be likely to suppose that the change of base is one similar to the change made by the German government under Bismarck from individual liability of employers to a state fund for insurance, contributed by employers, by workmen, and by the general taxpayers. This, however, is not the fact. The laws of

Austria were based upon the proposition that the damages to individuals, because of industrial accidents, are as much a part of the cost of the product, as is the coal, wear and tear on machinery, wages, or any other element which enters into the production. It was further argued that, under the old system, the larger part of this cost fell upon the individual workmen in a manner, such as to frequently crush them and their families to the great damage of the state; and that there was no means by which it could be added to the price of the product and passed to the consumer, except by taxing it to the employer and requiring him to pay the same. This, of course, was a complete abandonment of the individualistic proposition, that the right to compensation arises out of the failure of the employer to exercise proper negligence and is, to a degree, penal. The Austrian system does not regard this compensation as a matter between the employer and the employee at all, excepting in a merely incidental way. It regards the consuming public as the persons, who should and must pay the entire cost of the product and its mediate payment by the employer as a means of compelling its immediate payment by the consumers. This seems so reasonable, that it has in the short space of fourteen years made its way in all countries of Europe, including the most enlightened and progressive in industrial matters, like Great Britain, for instance, where the bill was carried through by the conservative government, and including also the least progressive in industrial matters, like Italy and Spain. As a result of these laws, almost one hundred per cent of the industrial acccidents are compensated in a reasonable degree, the amount of compensation being fixed by the law; while, under the operation of the laws of the United States, not more than from about five per cent to seven per cent on the average are compensated at all, and very frequently these fortunate claimants recover excessive judgments for damages, the proceeds of which are divided with lawyers, who take the cases on shares.

It is altogether probable that the publication of this valuable information, so difficult of access, by the Bureau of Labor Statistics of New York, will lead to a movement in the United States to establish similar legislation, and in any event this report is one which no statistician or student of political economy can afford to be without.

MILES MENANDER DAWSON.

QUARTERLY BULLETIN: BUREAU OF ECONOMIC RESEARCH.

Bulletins Nos. 1 and 2, published quarterly by the (New York) Bureau of Economic Research, undertake "to reduce the more important industrial and commercial statistics (of the United States and its chief cities) to a basis of percentages or 'index numbers.'" The first number of the bulletin gives yearly averages for 1878–1900; the second contains quarterly and monthly averages for the same period.

"The method of computing the index numbers here adopted consists in finding the average price of each article for the ten years 1879–1889 (crop year, July 1st to June 20th), and giving to that the value of 100. All other quotations of the same article are then expressed in percentages, or 'index numbers,' of this base. For example, the average price of spring wheat No. 2 on the Chicago market for 1879–1889 was 94 cents. Giving to this the value of 100, the average price, 71 cents, for the the year 1898–1899 was 76, relative to the base, 94. In other words, the average price of wheat in 1898–1899 was 76 per cent of the average price for 1879–1889, and 76 is the 'index number' for the year. The 'index number' for wheat for the week ending June 9, 1900, was 72, the price being 68 cents. Sixty-six commodities are treated in this way; . . . to find the general price level of all commodities for a given year, all of the index numbers of the 66 articles for the year are added together and their average is the general index number for the year."

Index numbers, thus, "are nothing more nor less than *percentages*, and they show the *relative movements* in prices. It must never be thought that they involve an åttempt to find an average of the prices of a bushel of wheat. . . . A general index number is not an average of prices but an *average of the ratios* between prices." The purpose of the index numbers is "not to find an unthinkable average of prices, but to show from year to year and month to month the relative prosperity of different classes of the community, in as far as this can be shown by the changing prices of what they buy and what they sell."

"The reasons for selecting the years July, 1879, to June, 1889, as the base are partly because these years mark the beginning of the present period of specie payments."

The index number methods of Sauerbeck and of the *Economist* (for England), of Conrad (for Germany), of Atkinson (for India), and of the Bank of Japan have been translated into the system here employed, that valuable comparisons may be made.

The 66 articles referred to above have been divided into groups and sub-groups as follows: —

Group I. Live stock; "a group in which the supply does not quickly respond to increased demand, and which, therefore, shows excessive rise in times of prosperity."

Group II. Animal products; "a group produced from Group I, but showing less extreme fluctuations."

Sub-group 2. Slaughter products.

Sub-group 3. Dairy products.

Group III. Agricultural products; "a group of unlimited supply, *i. e.*, a group which can be reproduced in a single season."

Sub-group 4. Breadstuffs.

Sub-group 5. Plants and fibres.

Group IV. "A group of limited supply, *i. e.*, a group which is not *reproduced* but is *found* under or on the earth's surface."

Sub-group 6. Metals.

Sub-group 7. Minerals and lumber.

Group V. Manufactured products.

Sub-group 8. Iron manufactures.

Sub-group 9. Mineral manufactures.

"Both sub-groups 8 and 9 are manufactured mainly from crude materials of limited supply."

Sub-group 10. Manufactured agricultural products, *i. e.*, "articles manufactured from crude materials of unlimited supply."

Besides numerous tables describing the articles and authorities considered in the making up of index numbers, there are employed to illustrate and supplement the index number lists a number of well-selected charts which show graphically the variations in the commodities.

As an example of the method of describing and classifying articles we subjoin portions of one of the tables of the *Bulletin*: —

DESCRIPTION OF THE ARTICLES AND AUTHORITIES.

Articles.	Market.	Description and Authority.	Weighting on Basis of American Product.
Cattle.....	Chicago.. ...	Native steers, top price, average weekly. *Board of Trade.*	One-sixth of farm value (Department of Agriculture) estimated as annual slaughter.
Hogs.....	Chicago.....	Packers' and shippers' heavy, top, weekly averages. *Board of Trade.*	One-half farm value.
Glue.....	New York....	Medium white. *Oil, Paint, and Drug Reporter.*	Census 1890, other years estimated.
Eggs.....	New York....	Nearby, prime to fancy. *Produce Exchange.*	Same as butter. [Butter is given previously in the list.]
Pig Iron...	Philadelphia..	No. 1 Anthracite Foundry. *Iron Age.*	American Iron and Steel Association.

E. H. D.

VITAL STATISTICS OF THE ARMY.

The *Report of the Surgeon-General of the Army* to the Secretary of War for the year ending June 30, 1900, contains a tabulation of the annual death rate per thousand among the volunteer and regular troops serving in various countries occupied by the U. S. during 1898 and 1899, of which the following is an abridgement: —

	United States.		Cuba.		Porto Rico.		Philippine Islands.	
	1898.	1899.	1898.	1899.	1898.	1899.	1898.	1899.
All Causes.								
Volunteers.....	24.41	7.26	86.09	16.46	52.09	10.53	24.70	29.83
Regulars.....	20.14	8.28	98.16	19.55	41.45	11.35	22.74	31.10
Gunshot Injuries.								
Volunteers.....	.43	.62	11.91	.62	1.86	..	2.86	16.81
Regulars.....	1.21	.57	33.33	.92	1.04	.60	3.10	9.60
Typhoid Fever.								
Volunteers.....	16.59	1.19	22.05	2.72	40.66	2.63	9.28	2.20
Regulars.....	8.79	.99	14.17	5.26	22.80	2.69	7.58	3.58
Yellow Fever.								
Volunteers.....	.01	..	15.88	.12	..	..	..	..
Regulars.....	.08	.11	17.57	4.17	..	..	..	..
Malarial Fever.								
Volunteers.....	1.26	.37	14.77	3.71	2.92	..	1.43	.43
Regulars	2.24	.12	13.12	1.67	5.70	..	1.72	1.23

The high death rate rate in Cuba is notable; even in 1889 although diminished 80 per cent it was excessive. The high rate in the United States during 1898 is partly attributable to imported cases from other regions but not wholly, as one remembers the conditions in certain army camps. The Philippine Island death rate was low during 1898 for troops in a tropical climate; in 1899 the increase of fatalities from gunshot injuries contributes markedly to raise it nearly one-half. With this exception all the rates were much decreased in 1899 among regulars as well as volunteer, showing the effect of immunity, acclimatization, and natural selection. The regular troops show lower rates from the contagious diseases than the volunteers, whether from better general physical condition or more intelligent sanitary precautions on the part of their officers. Their large excess of mortality from gunshot injuries is a tribute to their gallantry; but in the Philippines, during 1899, the volunteers appear to have been exposed even more than the regulars.

Typhoid fever was especially prevalent in Porto Rico during 1898; while yellow fever and malarial fever attained their maximum in Cuba during the same year. From a set of tables, showing the cases and deaths in each month from certain diseases for 1899, the following table is compiled, those two diseases having been selected which show well-marked seasonal variations: —

CASES PER 1,000 MEAN STRENGTH, 1899.

Months.	Typhoid Fever.				Diarrhœal Diseases.			
	United States.	Cuba.	Porto Rico.	Philippine Islands.	United States.	Cuba.	Porto Rico.	Philippine Islands.
January	.9	2.0	1.6	1.9	5.5	27.7	48.6	20.5
February	.3	3.1	1.8	.8	4.0	38.0	33.0	16.6
March	.4	3.6	.8	1.2	5.1	33.8	32.1	30.0
April	.7	7.3	.3	1.6	7.9	37.1	43.5	40.0
May	1.0	5.4	2.5	2.1	9.4	53.5	60.1	85.6
June	1.0	3.6	.6	3.7	12.1	52.8	93.5	97.3
July	1.2	3.6	3.1	2.0	14.0	47.9	52.8	107.4
August	1.1	3.2	.3	2.0	18.7	46.9	37.1	79.4
September	2.5	2.2	.3	2.4	10.2	31.3	44.5	54.5
October	.7	1.3	1.0	1.6	6.8	31.4	42.5	44.4
November	.5	1.3	1.1	1.4	3.6	25.1	33.8	34.1
December	.3	1.5	.3	1.3	3.1	20.6	35.6	26.9

It will be noted that typhoid morbidity in the United States rises regularly from a minimum in February to a maximum in September, while in Cuba the minimum is in October, and the maximum in April, forming almost a complementary curve. In Porto Rico and the Philippines the curve would be less smooth, but in both cases the highest rates lie between May and July, with the smaller values at the end of the year. The curve for diarrhœal diseases would be exactly similar but somewhat more even on account of the greater number of cases. The final tables at the end of the Surgeon-General's report furnish striking evidence of the dangers of tropicial service in the comparison of various rates with those of the army for the decade, 1888–1897. Thus the admissions for diseases per 1000 mean strength of the total army were 2006 in 1898, 1987 in 1899, and 893 in the previous decade. The death rates from all diseases were 25.0, 11.8, and 4.5 for the corresponding periods. The admission rates for typhoid fever were 141.6, 20.7, and 4.9; for yellow fever they were 7.9, 2.5, and .03; for intermittent malarial fever they were 413.7, 391.1, and 62.8.

C.-E. A. W.

NOTES ON VITAL STATISTICS.

The *Thirty-sixth Annual Report of the Registrar-General of Ireland* for 1899 contains, like all the English blue-books, much valuable material. Of special interest is the tabulation of marriages according to the mode of celebration, and the ratios of the same to the corresponding estimated populations, because such data are rarely obtainable. The marriage rate for Roman Catholics has ranged from 4.04 to 4.62 since 1889, with an average of 4.34. The corresponding average rate for members of the church of Ireland and Protestants is 6.12, with extremes of 5.80 and 6.53. The reviewer is at a loss to say whether this striking and constant discrepancy is due to some error in the collection of data or whether it indicates some correlation between religious faith and racial character, or economic conditions. A curious difference in seasonal distribution is brought out in the table giving the marriages by quarterly periods. For Roman Catholics the equivalent annual rate for the four quarters of the year for ten years,

1889–1898, averaged as follows: 6.4, 3.8, 3.6, 3.6. For all other marriages the corresponding figures were 5.2, 6.0, 6.5, 6.6. The diagram in the report which shows the mortality from twenty-two causes of death during the year throws some discredit on the system of registration,— because old age occupies the first place on the list being credited with a total of 14,216 deaths. As vital statistics improve this cause of death steadily declines in apparent importance.

Dr. Symons, Medical Office of Health of Bath, England, in an article on *Local Statistics* in the February, 1900, number of *Public Health* notes the importance of referring birth and death rates to special age and sex groups, rather than to the total population. He points out that in Bath there are only 275 children under 15 years of age to each thousand of population, while in England and Wales there are 351; therefore, death rates for children's diseases if referred to total population should be corrected by a factor of 1.275. Again, there are only 154 "young married women" in Bath as against 170 in England and Wales, so that marriage rates should be multiplied by 1.105.

Dr. Thomas Oliver in an address on the *Physiology and Pathology of Inheritance*, published in *The Lancet* for November 10, 1900, gives some statistics for tuberculosis derived from several insurance companies on both sides of the Atlantic. The records of the New York Mutual Life Insurance Company show that the ratio of deaths from tuberculosis to total deaths, in families without consumptive history, fell from 35.8 under 29 years of age to 26.3 between 30 and 30 years, and to 17.6 between 40 and and 49 years. In families with such history, on the other hand, the corresponding figures were 51.6, 39.6, and 24.6. The conclusion from these tables is that a family history of phthisis indicates an increased liability to this disease of 30 per cent up to the age of 50. The statistics of the Scottish Widows' Fund, on the contrary, show less difference, the percentage of consumptives among children of phthisical and non-phthisical parents being 8 and 7, respectively. Statistics of insurance companies can, however, only be interpreted by one familiar with the exact conditions which govern their collection in the individual case.

A brief but valuable paper by Sir H. R. Beevor, M.D., in the *British Medical Journal* for August 18, 1900, is on the subject of "Rural phthisis and the insignificance of case-to-case infection." The author discusses the death rate for this disease in the eighteen rural districts of Norfolk county for the three decennia from 1861 to 1890 in the population between the ages of 25 and 45. He shows by a table and a diagram that in almost every instance there has been a marked fall between each period. The first five districts, taken alphabetically, give, for instance, the following results: —

1861–70.	1871–80.	1881–90.
4.27	3.09	2.70
4.00	3.33	2.45
3.43	2.81	2.46
3.36	2.57	2.53
4.39	3.57	2.38

The striking fact, however, is the constancy of rate in each period among the different districts, — that is, the variation between the rates for different periods in the same district were much greater than the variations between different districts in the same period. The author draws the just conclusion that general sanitary conditions which affect all these districts alike have played a greater part than infection which must have varied with the locality. In other words, phthisis is a disease in which the germ is widespread and the factor of vital resistance occupies a prominent place.

The Year-book of the Health Department of the city of Ghent contains some interesting compilations of the death rates, for 1899, of various European cities, ranging from Amsterdam, 15.3; through Hamburg, 17.4; Berlin, 18.8; London, 19.2; Dresden, 19.5; Paris, 20.1; Vienna, 20.7; Venice, 22.8; and St. Petersburg, 24.7, to Rouen, 29.6. Another table gives the death rate from tuberculosis in forty-nine cities, of which the following may be quoted: Liège, 1.69; London, 1.79; Rome, 2.20; Berlin, 2.38; New York, 2.80; New Orleans, 3.78; Paris, 3.92; Nuremberg, 4.70. No authority is given for these figures. A diagram at the end of the report indicates the relative intensity of certain causes of disease in a rather striking fashion, each cause being represented by a segment of a circle and a separate circle representing each month.

Clément Juglar in a brief communication to the *Journal de la Société de Statistique de Paris* (November, 1900, p. 386) criticises the expression of birth rate, as referred to total population, as calculated to obscure the true relations of things. He points out that quite considerable differences in actual numbers of births are reduced by this ratio to slight variations in the first place of decimals. He objects also to the masking of yearly differences by combinations into five and ten-year periods and maintains that a consideration of the actual figures for a long period of years, and especially of the maxima and minima, can give the only just idea of the progress of affairs. M. Juglar illustrates his system by analysis of the figures for births in France from which he draws alarming conclusions. This illustration detracts considerably from the author's argument, because it shows how easy it is by comparing the maximum of three years at one period with the maximum of ten years at another, and the actual number of births in one year with the maximum of a previous period and by disregarding the population, to prove anything whatever. The method commonly used may not be spectacular, but it is reasonably safe.

The *Journal de la Société de Statistique de Paris* for May, 1900, contains an interesting addition to the growing list of studies which aim to connect statistics of births and marriages with economic conditions. The author, Clément Juglar, refers to a table of marriages in Switzerland presented at a previous meeting of the society by Fahlbeck, and points out the falling off in marriage rate due to the Crimean war, Civil war in the United States, the panics of 1873 and 1882, and the Baring failure of 1890. Juglar then gives a table which shows the effect of these latter disturbances in France and England, in Paris and London, on marriages and legitimate births. In the year of the panic, or the financial crisis, the marriage and birth rates reach a maximum, and in the succeeding period of depression fall to a minimum. The French marriage rate, for instance, was 352 in 1873, 278 in 1879, 289 in 1882, 269 in 1886, 290 in 1890, and 282 in 1895. The table is unfortunately not given in full, only the extreme points being tabulated, but the author states that the curve between the points is a regular one.

The *Forty-sixth Registration Report of the State of Rhode Island*, for 1898, is marked by the adoption of the geometrical ratio for the calculation of population. Besides the usual routine material there is given a tabulation of the deaths for forty-six years by occupations, with the average ages of decedents. Such data are not of great value for specific avocations; first, because the base for calculation is too small; and second, because many of the occupations recorded presuppose a more or less definite age. Thus, it is not surprising that the average age of decedents, classed as "judges and justices," as "sextons," and as "sea captains or ship-masters," should be high; or that the corresponding figures for "ball players," "students," and "actresses" should be low. The figures for groups of occupations are of interest, however, although the system of grouping used in this case is neither clear nor logical. The average ages of decedents in the groups adopted, from June 1, 1852, to December 31, 1898, were as follows: Tillers of the soil, 66.69; optional activity, 55.91; professional and personal, 54.00; outdoor, local, 53.27; indoor, active, 50.71; occupations at large, 49.32; indoor, activity restricted, 45.04. Another valuable table shows the ratio of male and female births by years since 1864. The ratio of males born to 100 females ranges from 100.3 to 112.9, and averages 104.8. In colored children, on the other hand, the ratio, since 1886, has averaged 97.0. The classification of causes of death adopted in this report is a most excellent one, and is referred to more at length elsewhere.

The *Monthly Bulletin of Vital Statistics of the Michigan State Board of Health*, for November, 1900, is noteworthy for the attempt at a partial registration of morbidity in the towns and other registration districts of that State. The presence of cases of pulmonary tuberculosis, diphtheria, scarlet fever, measles, small-pox, typhoid fever, whooping cough, and cerebro-spinal meningitis in any city, village or township is indicated by the letter "s" in the proper column. This innovation must prove of great value for practical purposes; its statistical importance would be vastly increased if it could be made quantitative.

The *Thirty-first Annual Report of the State Board of Health of Massachusetts*, for the year 1899, contains many indications of encourag-

ing sanitary progress. The mortality from typhoid fever shows a falling off as follows: —

DEATH RATE PER 1,000 INHABITANTS.

	1871-75.	1876-80.	1881-85.	1886-90.	1891-95.	1896-99.
In the cities	8.2	4.2	5.1	4.6	3.4	2.6
In the whole state.....	8.2	4.5	5.0	4.1	3.2	2.5

The death rate from consumption has fallen with similar steadiness from 41.1 in 1851–55, to 34.6 in 1871–75, to 23.1 in 1891–95, and 21.7, 20.8, 19.4 and 18.7, respectively, in the four years, 1896, 1897, 1898 and 1899. The ratio of reported deaths from consumption to deaths from all causes has fallen since 1890 from 130.0 to 99.5. As usual a valuable chapter of the report is devoted to the fatality from certain infectious diseases. The fatality from typhoid fever in 1899 was 17.7, a little below the average of the years, 1891–99, which is 18.9. The average fatality of scarlet fever for the latter period has been 5.3, and that for measles, 1.2. The diphtheria statistics are grouped in two tables; in the pre-antitoxin period, 1891–94, the fatality was 28.3; in the period, 1895–99, it was 14.9. Similar figures from the English local government board are given for comparison. They are somewhat higher, except for typhoid fever; all such figures are probably excessive on account of the uncertain reporting of light cases.

The *Annual Report of the Department of Public Health of Newark, N.J.*, for 1899, contains somewhat fuller statistical information than has previously been published by that city, in particular tables of reported cases of infectious diseases by months, which show the connection between diphtheria and scarlet fever and the school year, and that between water-borne typhoid fever and spring floods. The value of the table of deaths by ages is diminished in value, because ages from "twenty to sixty years" are massed together. The following table showing the value of diphtheria antitoxin is interesting as showing the advantage of the treatment and also an apparent diminution in the natural virulence of the disease: —

PER CENT OF DEATHS TO CASES.

Year.	Antitoxine Used.	Antitoxine Not Used.
1895	13	23
1896	12	31.4
1897	11	18.7
1898	10.5	17.4
1899	8.7	14.5

In the *Annual Report of the Health Department of Louisville, Ky.*, for the year ending August 31, 1900, are tables of mortality from contagious diseases compared to the cases of such diseases reported. The ratio of 417 deaths from consumption to 195 cases reported forcibly illustrates the difficulty of securing notification in this disease. A table of the comparative mortality in various cities in the United States for 1899 is given in this report, which shows the advantage of a liberal estimate of population in securing a low death rate. Some of the lowest death rates may be quoted with the populations on which they were calculated and the actual populations in 1900: —

City.	Death Rate. 1899.	Estimated Population. 1899.	Actual Population. 1900.
St. Paul	6.43	215,582	163,065
Omaha	6.86	140,000	102,555
Minneapolis	8.74	225,602	202,718
Indianapolis	10.83	195,000	169,164
Cincinnati	13.74	405,000	325,902

Few municipal documents furnish as much information in as clear and concise a form as the *Biennial Reports of the Department of Health of the City of Chicago*. The report for 1897 and 1898, besides full tabulation of statistics for those years, contains a chronological summary of the period, 1851–1898, giving monthly deaths from the more important causes for that period with annual ratios to the population and to the total mortality. The tables are supplemented by diagrams in most cases. The ratio of deaths from a specified disease to the total mortality is helpful and makes clear the contrast between the diseases which are increasing and those which are decreasing. The following table is compiled from a number of those given to illustrate this contrast: —

PERCENTAGE OF TOTAL MORTALITY.

Year.	1894.	1895.	1896.	1897.	1898.
Cancer and sarcoma	2.69	2.82	3.16	3.55	3.91
Consumption	9.01	8.96	9.96	10.00	10.60
Pneumonia	6.39	9.74	9.23	9.87	10.86
Heart disease	4.32	5.39	5.30	6.25	6.13
Typhoid fever	2.06	2.14	3.23	2.00	2.79
Diphtheria	3.53	5.87	4.12	3.22	2.73
Scarlet fever	0.79	0.32	0.23	0.37	0.29
Diarrhœal diseases	12.28	6.77	6 31	5.64	3.73

Dr. C. A. Lindsley, Superintendent of Registration of Vital Statistics in the state of Connecticut, in his report appended to that of the State Board of Health for 1899 finds cause for congratulation in the workings of a new law regulating the collection of vital statistics. This law does not change the general system which has required reports from doctors, clergymen, justices, midwives, sextons, undertakers, etc., for over forty years, but it provides for a legal county officer whose duty it is to see that the registration laws are obeyed. This provision has "doubled the value of registration and in some towns increased it tenfold." The Connecticut records go back to 1848, forming the longest series in this country, except those of Massachusetts, which extend to 1842. The Connecticut tables, published each year, are very extensive, including births, marriages and deaths by sex, nativity, and parentage; births and deaths by sexes and months; deaths by towns nosologically arranged; total deaths for ten years nosologically arranged; deaths in towns by ages and by months; births and deaths in towns by nationality; deaths by months; age and sex nosologically arranged; occupations and ages of decedents; illegitimate and plurality births and still-births by months and sexes; and various special tables of the zymotic diseases. Of the latter, one of the most significant gives the percentage of mortality from typhoid fever to total mortality in the towns of over 20,000 inhabitants. The ratio for the state is 1.3 per cent, that for the nine large towns is 1.7 per cent. The ratios in Waterbury and Hartford, with water supplies taken in whole or in part from highly polluted streams, were 2.9 per cent and 2.4 per cent, respectively. One may suggest that it is a pity the Connecticut board does not conform to the more logical, and now more general custom, of excluding the still-births from the total record of the births.

C.-E. A. WINSLOW.

A MATHEMATICAL ANALYSIS OF THE CURVE OF DEATHS AT DIFFERENT AGES.

The statistical and mathematical study of variation, as carried out by Galton and Pearson in England, by Davenport in this country, and by many others, has created almost a revolution in biological methods of research, and marks a great step in the transformation of biology from an observational to a logical science. No contribution to this subject has been more significant than some recent work on the curve of mortality at different ages. This branch of research was first suggested by Professor Lexis (*Einleitung in die Theorie der Bevölkerungsstatistik*, 1875, *Zur Theorie der Massenerscheinungen*, 1877, *Sur la durée normale de la vie humaine*, *Compte rendu des seánces de Congrès international de demógraphie*, Paris, 1878), who pointed out that, when a curve is constructed with the number of deaths in a population as ordinates and the ages at death as abscissæ, the old age portion of the curve strikingly resembled a normal curve of frequency. Karl Pearson in 1897 (The Causes of Death) applied the more refined methods of statistical study to this problem with remarkable results. First he found that the statistics of French and English mortality could not be made to coincide with Lexis' scheme, — until for the normal curve of chance distribution he had substituted a skew frequency curve, or one in which the mean and the mode do not coincide. A curve of this character, such as is commonly found on plotting the variations in the organs of plants and animals was found to correspond with the actually observed curve for English males; the mean was at 67 years, and the mode at 72. When this portion of the mortality had been removed the curve of the next section of mortality was found to coincide with a second chance distribution curve, centering, with only a negligible skewness, about the forty-second year. A third component curve of the same character had its mode at 23, a fourth had a mode at three years and a mean at six; and, finally, the last 246 deaths out of a thousand may be regarded as lying on a curve, including also an ante-natal mortality of 605, with a mode at about the beginning of the last ante-natal month and extending to the limit of gestation, nine months before birth. The statistics for the first three months are unobtainable; those recorded for the last six months of ante-natal life indicate a

lower value than that required by Professor Pearson's calculation; but they are, to a great extent, incomplete and unreliable. The standard deviations of these five curves are of special interest; beginning with the old age component they are as follows: 13.4, 12.8, 7.8, 3.5, and .9. The number of deaths per thousand total deaths are 484, 173, 51, 46, and 246 (+ 605 ante-natal deaths).

In the article entitled *La Mortalità nei vari stadi della vita* in the *Bulletin de l' Institut International de Statistique*, xi, 267, Dr. E. Raseri has applied Professor Pearson's method to Italian statistics. He finds himself unable to harmonize still-births and the diseases of infancy with any theory; the diseases of adult life are, however, plotted so as to show the three later components of Professor Pearson's with great clearness. The curve of old age lacks the pronounced skewness shown by the English statistics, indicating a greater stability, and its mode is at 72 years with a standard deviation of 5 years and 9 months; the second curve has a mode at 52 years and a standard deviation of 4 years and 9 months; the third curve culminates at 25 years with a deviation of 7 years, 9 months. The coincidence of the statistical and theoretical curve is even closer than in the English diagrams; the total number of deaths in the component groups during the periods 1890–98 was as follows: —

	Old Age.	Middle Life.	Youth.	Infancy.
Males, . . .	109,229	38,269	48,240	192,282
Females, . . .	111,583	30,757	58,003	174,712

If the analysis of mortality statistics by the application of these four or five curves is found to be applicable to other populations its practical value will be very great. Dr. Raseri appends to his paper a table of deaths from the principal causes, arranged by five-year periods, in which it is clear that bronchitis and diarrhœal diseases contribute mainly to the infantile curve, and typhoid fever and tuberculosis to the twenty-five-year component; while pneumonia attains its maximum in middle life, and apoplexy and diseases of the circulatory system in old age. It is obvious, therefore, that a most significant view of the sanitary condition of a population may be obtained by a comparison of the relative magnitude and position of the component curves. Thus, by comparing Pearson's work with Raseri's, we get the following result: —

COMPONENT CURVES OF MORTALITY.

	Infancy.	Youth.		Middle Life.		Old Age.	
	Magnitude.*	Mode†	Magnitude.	Mode.	Magnitude.	Mode.	Magnitude.
Italy.....	495	25	124	52	99	72	282
England.....	292	23	51	42	173	72	484

* Per 1000 total deaths. † Years.

It must, of course, be remembered that this sort of study while profitable is also full of pitfalls for the unwary; and one can draw no conclusions from such figures as have been quoted without a thorough scrutiny of the mathematics and of the logic of the investigator.

C.-E. A. WINSLOW.

MICHIGAN VITAL STATISTICS.

The *Thirty-second Annual Report of the Secretary of State on the Registration of Births, Deaths, and Marriages in Michigan for the year 1898.* Edited by Cressy L. Wilbur, M.D., Chief of Division of Vital Statistics. Lansing, Michigan, 1900.

While this report is the thirty-second in a series, it marks a new departure in the history of registration in Michigan, since all of the previous reports were much less complete in consequence of serious defects in the registration laws of the State. Under the new law of 1897 a certificate of death must be presented to the local registrar in every case of death before burial is permitted. Under the old law the statistics of deaths were collected once a year, at the time of taking the annual assessment, and it was estimated that only 60 per cent of the deaths were thus collected.

According to this report for the year 1898 the returns were as follows: —

Total number of births, 1898,	43,462
Birth rate per 1,000 of the estimated population,	18.2
Total number of marriages, 1898,	20,138
Marriage rate (persons married) per 1,000,	16.9
Total number of deaths, 1898,	29,557
Death rate per 1,000,	12.4

Comparing these figures with those of other States having registration it would appear that while the marriage and death returns may be considered as fairly complete, the birth returns must still be quite defective.

In an appendix to the report the Bertillon system of classification is fully set forth, together with other important material of similar character. Much credit is due to the editor, Dr. Wilbur, for his energetic efforts in the way of securing uniformity of classification in this country. We are pleased to note that he has met with a good measure of success in this direction.

S. W. A.

CENSUS OF HAWAII.

The *U. S. Census Bulletin* No. 15 shows the population of the Hawaiian Islands for the year 1900. There are also included for purposes of comparison the population totals of each island for 1896 and, for Hawaii as a whole, from 1832 on, in six-year periods. A synopsis of the table showing the Hawaiian population from 1832 to 1900 is giving below: —

Census Year.	Population.	Increase or Decrease.	
		Number.	Per cent.
1832	130,313	.....	....
1850	84,165	— 46,148	— 35.4
1878	57,985	— 26,180	— 31.1
1890	109,020	+ 51,035	+ 88.0
1900	154,001	+ 44,981	+ 41.2

Each census since 1832, up to and including 1872, showed a loss, the returns in 1872 giving a population of only 56,897, representing a loss since 1832 of 73,416, or 56.3 per cent.

The total land surface of the Hawaiian Islands is, approximately, 6449 square miles, the average number of persons to the square mile at the last three censuses being as follows: 1890, 13.9; 1896, 16.9: 1900, 23.8.

The population, from 1866 to 1900, is given for every district of each of the islands in the Hawaiian group, and also for Honolulu,

which is practically the only city in Hawaii. "The population of Honolulu in 1866 was 13,521, as compared with a population in 1900 of 39,306, or an increase of practically three-fold in 34 years. The largest percentage of increase during any one period was 45.1, from 1878 to 1884. Honolulu had a population in 1890 of 22,907, showing an increase from 1890 to 1900 of 16,399, or 71.5 per cent."

SCHOOL ATTENDANCE IN RHODE ISLAND.

Mr. Thomas B. Stockwell, Commissioner of Public Schools of Rhode Island, gives in his annual report for 1899 (printed in the *Thirtieth Annual Report of the State Board of Education of Rhode Island*, pp. 67–120) information concerning the school attendance during that year.

The census enumeration of pupils of last year was 79,825, or 526 more than for the previous year. "The greater part of this increase is reported to have attended the Catholic schools, the public schools having lost a small number, and the army of non-attendants having gained. Perhaps this increase in absentees may be more than offset by the fact that the number of those who had attended school less time than the minimum required by law has fallen off more than a fifth; or the actual loss in the number of these short-timers is nearly three times as large as the increase in the number of those not going to school at all."

The number of children between the ages of 5 and 15 years who do not attend school is 2039; over one-half of these reside in Providence or Warwick, while the rest "are scattered quite generally over the whole State." In this regard, Mr. Stockwell calls attention to a recommendation of the factory inspectors in their reports of a year ago and of this year: "that, instead of an *age* limit or test, an *educational* one be applied, *viz:* that no child under fifteen years of age shall be employed who does not hold a certificate from the school committee of the town where he resides that he can read and write the English language." This, he says, "largely eliminates the age question, and substitutes an element that will naturally cause parents to seek a certain amount, at least, of schooling for their children.

On the other hand, it would be difficult to establish such a standard that uniform results could be secured all over the State."

The regularity of attendance has deteriorated during 1899, the "average number belonging" being less by 1090, and the "average attendance" by 1283. This, with the large number of non-attendants, is regarded as largely due to the prevalence of childhood sicknesses and to the increasing precautions taken to prevent their spread by contagion.

There is reported also "for the first time in a number of years . . . a *decrease* in the number of *re-enrollments.*" Yet, in spite of all this, the total number of schools has increased by 37,— 55 new graded schools having been added, and 18 ungraded schools abolished. The school year has, for the first time in nine years, been shortened by about one week; and the total number of teachers has increased by 61, while the number of *experienced* instructors is nearly 93 per cent, — a larger proportion than has been maintained for many years.

NOTES.

Mr. John B. C. Kershaw, in an article entitled *An Investigation of the Cause of Trade Fluctuations,* in the *Economic Journal* for December, 1900 (pages 474–486), presents the theory that, as all international trade is, fundamentally, the exchange of products of agricultural labor for those of mechanical labor, the volume of trade must be dependent on the volume of crops, and a series of bad harvests must affect, in more or less exact ratio, the trade of manufactured goods. This theory, first pronounced by William Herschell, has received support from such economists as Jevons and Giffen; and Mr. Kershaw shows diagramatically that the fluctuations from 1856 to 1898 in cotton, wheat, and sugar exported from the United Kingdom and in the total crops raised in the chief producing countries, tend generally and moderately to substantiate the theory. This cause, he regards as co-existant and equally important with the "credit cycles" and tariff changes, in its effect in bringing about the periodic depressions in trade and commerce. Sufficiently influential is it, indeed, that each commodity, regarded with due allowance for "lag" effects peculiar to it, may exert, in connection with other products, or individually, an effect generally recognizable in the final trade fluctuations.

The *Journal of the Royal Statistical Society* for September, 1900, contains (pages 459–472) an address by Major P. G. Craigie, President of Economic Science and Statistics Section of the British Association. Mr. Craigie speaks of the importance, in census work, of enumerating all the characteristic *units* of population, and, particularly in agricultural statistics, of reducing data from different places and of different times to a common standard, suitable for accurate comparison. For example, allowance should be made for the varying size of minimum "holdings" to be considered in agricultural statistics, this variation extending as it does from three acres in the United States to no limit whatever in Germany, Belgium, or Ireland. He speaks also of the chief products to be considered in such study, and emphasized the inaccuracies, in treatment of the subject of *live stock*, due to variations in the productive power of an acre. He warns statisticians against treating isolated cases and against indulging in prophecies where all conditions have not an assured permancy for the future.

In the annual report of the American Unitarian Association for 1900, statistics with diagram curves are printed, showing the growth of this denomination. In 1850 there were 251 churches; in 1900 but 199 churches of date before 1850; 52 churches, existing in 1850, have thus apparently ceased to exist in 1900; 8 churches have disappeared in the last decade. There is a total growth of churches from 251 in 1850 to 457 in 1900.

In an address delivered by Mr. T. T. Sullivan, President of the Ohio Bankers' Association. at the annual meeting of the Association, October 24, 1900, some interesting returns were presented in regard to the occupation, of the depositors of the Society for Savings in Cleveland. This savings institution has 58,300 open accounts, representing $37,000,000 of deposits. The occupations of the depositors are roughly distributed as follows: —

Professional men	1,700
Clerks	9,200
Teachers	2,600
Employees in manufactories and trade	13,500
Day laborers	9,500
Domestics	3,500
Miscellaneous unable to classify	18,300
	58,300

In the *Eighteenth Annual Report of the Charity Organization Society of New York*, on p. 71, an analysis is made of the chief causes of need of 1460 new families considered during the year. The condensed classification appears as follows: —

	Totals.	Per cent.
Disregard of Family Ties.		
Desertion, neglect to contribute by children, by brothers, by sisters, or other natural supporters	121	8.28
Within the Family.		
Intemperance (abuse of stimulants or narcotics)	201	13.76
Licentiousness	17	1.15
Dishonesty, or other moral defects	28	1.92
Lack of thrift, industry, or judgment	150	10.22
Physical or mental defects. Blind, deaf, crippled from birth, insane, feeble-minded, etc	40	2.81
Sickness, accident, or death	367	25.14
Outside the Family.		
Lack of employment, not due to employee (change in trade, introduction of machinery, hard times, strike or lockout, partial or complete shutdown, removal of industry, etc.)	284	19.45
Defective sanitation	1	.07
Degrading surroundings	12	.83
Unwise philanthropy	4	.27
Unclassified	235	16.10
	1460	100.00

The New York *World Almanac and Encyclopedia* for 1901 contains, among its new articles, reviews of the area and population of the United States, commerce with the United States dependencies, the anti-imperialist party and platform, the census reports of the United States, the milk production of the United States, and European banking statistics.

Hazell's Annual (English) for 1901 contains a number of new reports on important statistical subjects. Among these may be mentioned (1) the *Report on Indian Expenditure* by the Royal Commission on India; (2) a discussion of the *Labor Movement*, with the recent legislation of Belgium, France, Germany, Spain, Switzerland, and New Zealand; (3) an article, containing four tables, on the *Coal Trade in 1900*, reprinted from the *Journal of the Iron and Steel Institute* for 1900; (4) an article on the railways of the world, of the United Kingdom, and of the British Empire during 1900; (5) the *Stock Exchange Movements* in 1900, with six tables; (6) *Trade in 1900*, given for countries and for chief articles of commerce, with five tables; also a consideration of trade-marks, trade unions, etc.; and (7) the *Wine, Spirits, and Beer Trade of the United Kingdom*, with two tables.

The *Tribune Almanac and Political Register* for 1901 (Vol. XIII, No. 1) contains an historical table, giving the total values of imports and exports in merchandise and specie, for the United States, from 1790 to 1900.

STATISTICS OF HOUSING ACCOMMODATION.

The following article is reprinted from *Public Health* (London, January, 1901), based upon a report published in *Revue d'Hygiène:* —

In the demographical section of the recent International Congress of Hygiene and Demography, held at Paris last August, M. A. Fontaine submitted a communication dealing with the question of the housing of populations according to the number of rooms in each tenement or house, the figures being extracted from census returns and other sources. He submitted a table dealing with the condition prevailing in fourteen large European and four American towns and cities. It appeared that the percentages of inhabitants dwelling in tenements occupied by two or more persons per room were: —

Paris,	6	Lemberg,	37	Salzburg,	9
Berlin,	8	Brünn,	14	Innspruck,	2
Dresden,	9	Cracow,	33	Marburg,	18
Vienna,	13	Pilsen,	43	St. Petersburg,	35
Prague (including suburbs),	27	Reichenburg,	39	Moscow,	28

M. Fontaine hesitated to accept the higher ratios mentioned, and while thinking that industrial and national customs had some share in producing these conditions, thought that it was desirable for future inquiries to formulate more accurate definitions of the fundamental terms of the inquiry. He held that information was required as to the cubic capacity of the rooms which formed the subject of any such inquiry, but thought that such information could be obtained only in the course of ordinary sanitary supervision. After discussion, the following definitions were agreed upon: —

Room.— Every sub-division of a house intended for habitation separated from other sub-divisions by partitions reaching to the ceiling and capable of accommodating a bed for an adult.

Tenement.— The aggregation of rooms intended for occupation by persons living within one front door (*vivant sous une même clef*). The rooms appurtenant to the tenement, and occupied by the domes-

tics of the family (frequently in another part of the house on the Continent), are to be included. Water-closets should not be included in the number of rooms, nor should stables, coach-houses, shops, studios, etc., except such as may be used for habitation.

It was also resolved that returns should be made of the number of rooms included in and of persons inhabiting each tenement; and that data should be included for determining the number of persons inhabiting each room. The returns should be published in the following form: —

Number of rooms per tenement.	Number of Persons Per Tenement.											Total number of tenements of each class of —— rooms.
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11 and Over.	
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11 and over												
Total number of tenements occupied by —— persons												

Schools, barracks, hospitals, penitentiaries, etc., should be made the subject of separate returns.

On the motion of M. de Inana-Sternegg, it was further resolved that for the purposes of a summary return it would suffice to state the number of rooms in each tenement, with some indications as to the variations in size and the uses of the rooms, and the number of inhabitants of each tenement. For more minute inquiries (usually limited to smaller areas) it was requisite to specify the size and use of each room, means of warming, etc. This plan was, he thought, preferable to any definition of the terms "room," "tenement," etc. The Congress expressed the hope that local sanitary authorities would establish registers of tenements, giving particulars of each room.

INACCURACY OF TRADE STATISTICS.

At a meeting of this Association of Chambers of Commerce of the United Kingdom, held in Paris, September 5, 1900, the following resolution was proposed by A. Serena (Italian Chamber, London): —

"That the Board of Trade statistics of imports, classified according to the several exporting countries, are inaccurate as regards articles not imported directly by sea into the United Kingdom; and that it is desirable to make representations on this subject to the Board of Trade."

He said the Italian Chamber of Commerce in London wished to bring to the notice of the Associated Chambers of Commerce the remarkable discrepancy between the statistics of Italian imports into the United Kingdom, published by the Board of Trade, and the statistics of exports from Italy to the United Kingdom, published by the Italian Minister of Agriculture and Commerce. The commodities specially alluded to were butter, eggs, and cheese, for which he would give the figures for the four years 1895–1898. For convenience of comparison the Italians returns, as regarded butter and cheese, had been converted from quintals to hundred weights, and the figures for eggs had been reduced from quintals to great hundreds, on the basis of 4½ lbs. to the great hundred. In 1895 the Board of Trade gave the returns for butter as 496 cwts., whereas, according to the Italian statistics, it should be 35,460 cwts. In 1896 the English figures were 1359 cwts., the Italian figures for the same period being 38,414 cwts. In 1897 the English returns gave 1349 cwts., but the Italian figure was 31,540 cwts.; while in 1898 they were 293 cwts. English, as against 32,839 cwts. Italian. In eggs the Board of Trade return for 1895 was 1070 great hundreds, whereas the Italian returns gave 1,632,282 great hundreds. In 1896 English returns gave 622 great hundreds, and the Italian 1,481,255 great hundreds. The English figures for 1897 were 19,530 great hundreds; Italian, 1,383,716; 1898 — English returns, 1672; Italian, 1,510,348 great hundreds. The same discrepancies occurred in cheese. In 1895 the Board of Trade gave the quantity as 794 cwts., whereas the Italians gave 49,117 cwts. In 1896 the English gave 1328 cwts., and the Italians, 42,747. In 1897 the Board of Trade gave 946 cwts., whereas the Italians stated the quantity as 43,000 cwts. The 1898 figures given

by the Board of Trade for cheese were 556 cwts., whereas the Italians gave 48,125 cwts. From inquiries made it was clear that the megreness of the Board of Trade returns was due to the circumstance that butter, eggs, and cheese were exported overland to French, Belgian, Dutch, and German ports, and thence by sea to the United Kingdom, and were entered in the custom house returns as French, Belgian, Dutch, or German imports, despite the fact that, in compliance with the Merchandise Act, they were clearly described on the covering as Italian produce. It was therefore very evident that the English statistics of imports from Italy were absolutely misleading regarding commodities sent overland, and that they must necessarily give a very inadequate expression of the importance of the trade carried on between the two countries, and conveyed a correspondingly exaggerated picture of the volume of trade between the United Kingdom and certain other countries.

The matter had been brought before the Board of Trade, which body admitted that their figures only covered consignments direct by ship from Italy, and stated that the same principle was applied generally through the British import returns, and that any attempts to classify such imports according to the country of production would lead to annoying restrictions. His, Mr. Serena's chamber, thought the reply received was far from satisfactory, and was most inconclusive. They considered the matter of sufficient importance to justify them in submitting it to the meeting. They suggested that before publishing their statistics the Board of Trade should submit them to the various countries interested for comparison and approval, and that in any case they should specify that their figures represented direct shipments by sea only, and that they were unable to classify the consignments sent overland. No doubt, now the subject had been ventilated, other suggestions would be forthcomming, and he would conclude by formally moving the resolution which he had read.